ROYAL AIR FORCE
BOMBER COMMAND

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SQUADRON PROFILES

NUMBER 93

428 (GHOST) SQUADRON
ROYAL CANADIAN AIR FORCE

USQUE AD FINEM

RESEARCHED, COMPILED AND WRITTEN
BY
CHRIS WARD

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ROYAL AIR FORCE
BOMBER COMMAND
SQUADRON PROFILES

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GENERAL NOTES

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GENERAL NOTES

This profile is a reference work on the activities of the squadron during the Second World War. Bomber Command operated exclusively from stations in the UK, and used overseas bases purely for shuttle operations, or as advanced staging posts for specific purposes. For this reason, periods spent on detachment, or permanent postings to overseas Commands, do not fall within the scope of this work.

This profile is not intended to serve as a comprehensive squadron history, but to provide as much information as possible in a non-anecdotal form. The brief history narrative is basically an account of Bomber Command's war, with the individual squadron's involvement interwoven into it. The publications listed in section 5 are not only recommended reading, but represent the best available sources of information for serious students of the subject. The operational record is based almost entirely on the figures provided in The Bomber Command War Diaries by Martin Middlebrook and Chris Everitt, and I am indebted to Martin Middlebrook for allowing me to use them.

An aircraft is included in section 3 if; a) it spent time on squadron charge, no matter how briefly, and irrespectively of whether or not it operated. b) the type was used operationally by the squadron. Where a squadron has a Conversion Flight involving a type with which it is intending to re-equip, but then does not, as in the case of 101 and 460 Squadrons, these have been included, on the basis that they sometimes found themselves on operations. Information is restricted in most cases to; where from, where to, unless it completed its service with the squadron, in which case, some detail of its demise appears. Aircraft which failed to return have the date and target recorded. Where no information follows the serial number of a type still in use when the squadron departed Bomber Command, or at war's end, it can be assumed that the aircraft was still on squadron strength. However, where there is a blank space following the serial number of a type which has been withdrawn from service with Bomber Command, it signifies that I don't know its ultimate fate. An absence of information does not imply that the aircraft flew no operations during its time with the squadron.

Those squadrons which served with the AASF in France between the outbreak of war and the fall of France, were not technically part of Bomber Command from January 1940. Never-the-less, their service is deemed to be on behalf of Bomber Command for the purpose of the relevant Profiles, and their experiences are, therefore, detailed, and their aircraft listed. The Blenheim squadrons of the AASF are also treated as if under Bomber Command.

Finally, information has been drawn from a variety of sources, ranging from Records Branch to individuals with squadron connections, and I am grateful for their contributions. There will inevitably be errors and omissions when dealing with a subject as vast as Bomber Command, and I am happy to be corrected and/or updated by readers.

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SECTION 1

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BRIEF HISTORY

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428 (GHOST) SQUADRON

MOTTO **USQUE AD FINEM** (To the very end.) Code **NA**

428 Squadron Royal Canadian Air Force was born out of Article XV of the British Commonwealth Air Training Plan (BCATP) Agreement, which was signed on the 7th of January 1941, and called for the formation of twenty five Canadian squadrons by May 1942. All such units were to be numbered in the 400 - 450 series. 428 Squadron was formed on the 7th of November 1942, on the same day that 427 and 429 Squadrons came into existence as the eighth ninth and tenth Canadian units in Bomber Command after 405, 408, 419, 420, 425, 424 and 426 Squadrons. Most began life in 4 Group, and with the exception of 427 Squadron, those formed late in 1942 would not gain operational status until after their transfer to Canada's own 6 Group on its formation on New Year's Day 1943. 428 Squadron's first home was at Dalton, where it took on Wellingtons, the first two, X3545 and X3546, arriving from 466 RAAF Squadron on the 26th of November. Eleven more aircraft had been taken on charge by the 8th of December, so that training could begin in earnest under the watchful eye of the commanding officer, W/C Earle.

Shortly before 428 Squadron's formation a new phase of the bomber offensive had begun, as Harris was forced to switch his attention upon Italian targets in support of Operation Torch, the Allied landings in North Africa. The campaign, which would occupy most of the remainder of 1942, opened with a 5 Group attack on Genoa on the 22/23rd, with 3 and 4 Groups following up twenty-four hours later, although actually bombing the coastal town of Savona in error. Later on the 24th 5 Group raided Milan to good effect in daylight, to be followed by elements of 1 and 3 Groups after dark, and this effectively ended the month's operations. The campaign continued with four raids on Genoa during the first half of November and four on Turin in the second half. There were only two major operations against German cities during the month, the first of which was Hamburg on the 9/10th. It was not outstandingly successful, as was the case when the Pathfinders failed to identify the centre of Stuttgart on the 22/23rd, and most of the bombs fell in the suburbs destroying less than a hundred houses.

Although formed on the same day as 427 Squadron, which was declared operational on the 1st of December after a remarkably short working up period, 428 Squadron would have to wait a considerable time, and would not be deemed ready for war until after its transfer to 6 Group. December had begun for the Command with a failure at Frankfurt on the 2/3rd, and another one at Mannheim on the 6/7th, these preceding the final three raids on Italy, which were all directed at Turin between the 8/9th and the 11/12th. The most significant operation in December was that carried out by six Mosquitos of 109 Squadron against the power station at Lutterade in Holland as an Oboe calibration test, to check the device's margin of error. Led by W/C Hal Bufton, three aircraft bombed successfully, while the other three suffered failure of their Oboe equipment, and joined in the main force attack on Duisburg instead. It proved impossible to identify the fall of the Oboe-aimed bombs because of the craters left by stray bombs intended for Aachen a few months earlier. Further calibration tests would be flown over the succeeding weeks, however, and the device would be ready in time for the

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forthcoming Ruhr offensive. The Duisburg operation was assessed by returning crews as successful, but another by elements of 1, 5 and 8 Groups against Munich on the following night missed the target almost completely.

It had been a year of highs and lows for the Command, with a number of spectacular successes punctuated by many failures. There had, though, been a marked improvement on the performance of the previous year as Harris's tactics evolved, while the advent of the Pathfinders and the development of electronic bombing aids promised much for the future. As far as the Canadians were concerned, there were now sufficient operational RCAF squadrons to constitute a Group, and the official formation of 6 Group would be the first act of the coming year. As the clock ticked towards midnight on New Year's Eve, Canada's government prepared for a moment of significance. They awaited not so much the New Year, but that which came with it, the birth of 6 Group RAF Bomber Command, a shining symbol of the burgeoning status of the independent Canada. There were many non-British squadrons in Bomber Command, but this was the first foreign organization to muscle in, and while in public there was harmony between the two high commands, in private it was a different matter. Harris was strongly opposed to the formation of a Canadian Group. He valued Canadian airmen, and welcomed their presence in the war, although he found it difficult to come to terms with their lax attitude in matters of RAF etiquette and discipline. He wanted to distribute them throughout the existing RAF Groups, but Whitehall wanted otherwise, and Whitehall won. Harris also had an intense dislike for Air Marshal Edwards, the Commander-in-Chief of Canada's overseas Air Force, and for the man who would initially be Air-Officer-Commanding 6 Group, AVM Brookes. Both were British born, and neither, as far as Harris was concerned, was worthy of holding a position of authority, particularly anywhere near his Bomber Command. A Headquarters was established in the baronial Allerton Hall, on the two thousand acre estate of Allerton Park, the ancestral home of Lord Mowbray, four miles east of Knaresborough. Its dark, somewhat angular and forbidding aspect soon saw it renamed Castle Dismal by the Canadians.

1943

As the Year turned not all RCAF squadrons in Bomber Command were immediately posted to 6 Group. It began life with eight operational squadrons, all based on former 4 Group stations in Yorkshire and County Durham, while a few other units remained in 4 Group for the time being. The founder units were 408 and 419 Squadrons, each equipped with Halifaxes, and 420, 424, 425, 426, 427 and 428 Squadrons, which were soldiering on with the trusty Wellington. The Canadian government was demanding Lancasters, and the type would eventually become dominant in the Group, but that would be by war's end. In the meantime, most of the existing Wellington units, and those awaiting posting in or still to form, would eventually find themselves operating the unpopular Halifax. There was no fanfare to herald the operational debut of the new Group, in fact, it was a damp squib, as the appalling weather conditions forced the cancellation of the intended maiden operation on New Year's Night. It was not until the 3/4th that half a dozen 427 Squadron Wellingtons disappeared into the murk at the end of the runway at Croft on the Group's first operation to lay mines off the Frisians. Another squadron should have contributed six more to the occasion, but was dissuaded by the

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conditions from taking part. W/C Burnside and two other crews returned early with technical difficulties, but P/O Bennett and Sgts Chambers and Johnson completed their assigned tasks, thereby bringing 6 Group into the war.

Inhospitable weather was to characterize January, and there would be no major activity during the first half of the month. The first aircraft to be written off under 6 Group was 427 Squadron's BJ604, which overshot the runway at Middleton-St-George at the end of a transit flight, and ended up on a railway line, where it was demolished by a train. A recent resurgence in U-Boat activity continued to take a heavy toll of Allied shipping in the Atlantic, and confirmation of this came with a new Air Ministry directive on the 14th, which authorized the area bombing of those French ports providing bases and support facilities for U-Boats. A target list was drawn up headed by Lorient, and that night 122 aircraft took off for the first of eight attacks against it over the ensuing month. This was 6 Group's first bombing operation, sixteen aircraft taking part in what was at best only a modestly effective raid.

Bomber Command's year had actually begun with a series of small-scale operations as part of the Oboe trials programme. Seven raids were mounted on Essen and one on Duisburg during the first two weeks of January alone, all involving Mosquitos of 109 Squadron and Lancasters from 1 and 5 Groups. On the 8th the Pathfinder Force was granted Group status as 8 Group, and the stations under its occupation were transferred over from 3 Group. Lorient was raided for the second time on the 15/16th, and more than eight hundred buildings were destroyed. Two disappointing attacks were mounted against Berlin by predominantly Lancaster forces on the 16/17th and 17/18th, and the only matters of significance arising out of the former was the complete destruction of the Deutschlandhalle, the largest covered arena in Europe, and the loss of a single Lancaster. The latter raid produced no useful damage, but cost twenty-two aircraft. Further attacks on Lorient took place on the 23/24th, 26/27th and 29/30th, while in between, the first Oboe ground marking ahead of the heavy Pathfinder aircraft was attempted on the 27/28th. This led to an effective raid on Düsseldorf, in which over 450 houses were destroyed, along with a number of industrial and public buildings. As Harris sought the most effective method of target marking, the first H2s attack of the war was mounted against Hamburg on the 30/31st. It was not an entirely successful debut for the device, but with time and practice it would emerge as a useful addition to the Command's armoury of electronic aids, particularly for use against targets beyond the range of Oboe. 428 Squadron suffered its first casualty on the night of the 31st, when HE173 crashed one minute after taking off for a training flight, killing F/O Gorick and two of his crew.

A combination of path-finding techniques was employed against Cologne on the 2/3rd of February with disappointing results, and the weather spared Hamburg from a telling blow on the following night, by forcing many crews to return early, and providing difficult conditions for the Pathfinder markers. The campaign against Lorient continued on the 4/5th, the night on which 428 Squadron opened its account against Hitler. It was an all-incendiary attack without Pathfinders, and successfully created areas of fire. One 428 Squadron Wellington returned early, and the remainder came home without major incident. On the 6/7th six 6 Group squadrons committed twenty-eight Wellingtons to mining sorties, of which two from 428 Squadron returned early, and another brought his mines home after failing to find the pinpoint.

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It was Lorient again for the Ghosts on the 7/8th, and then they sat out Wilhelmshaven's most destructive raid to date on the 11/12th, when complete cloud cover forced the Pathfinders to employ parachute flares as skymarkers. This was the least reliable of all techniques, but despite the difficulties, the marking was accurate and the bombing concentrated. One bomb load hit a naval ammunition dump, and the resulting explosion devastated an estimated 120 acres, and caused extensive damage in the dockyard and town. The penultimate attack on Lorient was delivered on the 13/14th, an operation in which 428 Squadron participated, and then the following night was devoted to Cologne and Milan. The former operation, which also included a 428 Squadron contingent, enjoyed only modest success, while the latter was more effective, and created fires visible from a hundred miles away.

Lorient was pounded for the final time on the 16/17th, and was left a deserted ruin after eight raids in which almost seventeen hundred aircraft had dropped four thousand tons of bombs. 428 Squadron Wellingtons took part, and all returned without major incident. The first of three follow-up raids on Wilhelmshaven took place on the 18/19th, but despite the commitment of almost two hundred aircraft the attack was a complete failure, which dumped most of the bombs west of the town. A contingent from 428 Squadron was active on this night laying mines around the Frisians, and Sgt Sylvester and his crew found themselves the prey for a JU88 night fighter. The enemy attacked three times during the outward flight, and the encounter ended only when the pursuer closed to within 150 yards dead astern, and was promptly shot down in flames to crash into the sea. W/C Earle relinquished command of the squadron on the 20th, and W/C Smith became his successor. Another raid on Wilhelmshaven on the following night by over three hundred aircraft proceeded in similar fashion to twenty-four hours earlier, only this time the bombing missed the town on its northern side. 428 Squadron took part, and all of its crews returned. A further raid on Wilhelmshaven by 6 and 8 Groups on the 24/25th again failed to make an impact, and most of the 428 Squadron element landed at Croft because of the weather conditions at Dalton. The unfavourable conditions over Nuremberg on the 25/26th helped to push the bombing onto its northern fringes and beyond into open country, but this was a night spent mining around the Frisians by a 428 Squadron contingent. The Ghosts were in action at Cologne on the following night, when the south-western districts sustained moderate damage in return for the loss of ten bombers. 428 Squadron's HE177 was attacked by a DO217 night fighter, but the encounter was inconclusive. On the last night of the month St Nazaire became the second of the French ports to be attacked under the latest directive. This was a successful operation, which caused heavy damage in the port area, and left an estimated 60% of the town's built-up area in ruins. 428 Squadron registered two early returns, but the remainder came home safely.

March would bring with it the first major campaign of the year against Germany, and the first offensive of the war for which Bomber Command was truly prepared and adequately equipped. Most of the front line squadrons were now operating genuine heavy bombers, although Wellingtons would continue to feature prominently until well into the second half of the year. The magnificent pioneering work on Oboe carried out by 109 Squadron had born fruit, and whilst the device was not yet problem free, it was ready to be used against the Ruhr. Tactics had been honed to the point where only actual operational experience could bring about fine-tuning, and enough target marking techniques were to hand to cope with most

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contingencies. This said, bombing was by no means yet a precise art, and would remain something of a lottery for a long time to come, particularly at the more distant targets. The Ruhr offensive would begin on the night of the 5/6th, but in the meantime, major operations were mounted against Berlin and Hamburg. Both lay well beyond the range of Oboe, and H2s would provide the reference point for the Pathfinder crews. Three hundred aircraft took off for the Capital on the night of the 1/2nd, and the shortcomings of H2s became apparent over the target. Confronted by the massive urban sprawl of any large city, it was extremely difficult for the H2s operators to interpret what they were seeing on their screens, and to pick out the specific area designated as the aiming point. On this night the main weight of bombs fell into the south-western districts, but the attack in general was scattered over a hundred square miles. Despite this, it was the most effective raid on Berlin of the war to date, in which almost nine hundred buildings were destroyed, and many factories sustained serious damage. 428 Squadron contributed to a mining operation around the Frisians on the following night, and then took part in the Hamburg operation on the 3/4th as part of a force of over four hundred aircraft. The operation did not go according to plan, and the small town of Wedel, thirteen miles downstream of the Elbe, received many of the bombs intended for Germany's Second City, again largely through misinterpretation of the H2s returns. Hamburg did not escape entirely, however, and the fire department had to deal with a hundred fires before going to the aid of its neighbour. Most 428 Squadron crews landed at Leeming on return.

There was feverish activity on the bomber stations on the 5th, as aircraft were made ready for the opening of the Ruhr campaign. Seven 428 Squadron crews were detailed, those of F/L Suggitt in X3550, Sgt Parkinson in HE738, Sgt Straight in HE239, Sgt Wykes in HE177, Sgt Manning in X3541, Sgt Knapp in Z1727 and Sgt Fry in BK563. 442 aircraft took off for Essen, but an unusually high number of early returns and the bombing of alternative targets reduced the numbers actually bombing the city to 362. The three wave attack was opened by Oboe Mosquitos, which marked the city centre with great accuracy, paving the way for the all Halifax first wave, Wellingtons and Stirlings in the second, and the Lancasters bringing up the rear. Oboe nullified the industrial haze, which had always protected the city in the past, and the operation was a resounding success. Over three thousand houses were destroyed, and the mighty Krupp complex received hits to fifty-three of its buildings. Losses were relatively light at fourteen aircraft, and it was a highly satisfactory start to what would be a five-month long offensive. The 428 Squadron contingent all bombed the target and came home, although Z1727 was hit by flak, which left a three foot hole in the fuselage. Round two of the campaign would not be launched for another week, and in the meantime Harris turned his attention upon southern Germany, sending forces against Nuremberg, Munich and Stuttgart on the 8/9th, 9/10th and 11/12th respectively. Wellingtons were not involved in any of these operations, but 428 Squadron went mining without loss on the first-mentioned night. Bombing at Nuremberg was spread along the line of approach in an example of the creep-back phenomenon, which was an almost ever-present feature of large raids, but six hundred buildings were nevertheless destroyed, and a number of important war industry factories were damaged. At Munich a strong wind pushed the emphasis of the raid into the western half of the city, where almost three hundred buildings were reduced to rubble, and 2,800 others were damaged to some extent. The Stuttgart operation was not a success, for which the first recorded examples of dummy target indicators were partly to blame. The main force arrived late at this notoriously

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difficult to locate target, and a modest 118 buildings were destroyed in the south-western suburbs.

The Ruhr offensive resumed on the following night with a return to Essen by over four hundred aircraft including those from the Wellington squadrons. 428 Squadron took part, but three of its crews returned early. Although the bombing on this night was generally less accurate that that of a week earlier, the Krupp complex sustained 30% more damage, and around five hundred houses were destroyed in central and north-western districts. Most 428 Squadron crews came home to a landing at Leeming, and now began a thirteen-night break as generally minor operations held sway. The second raid on St Nazaire took place on the 22/23rd, when 283 crews reported a concentrated attack on the port area. After another three-night lull, 455 aircraft set out for Duisburg, 6 Group dispatching more than a hundred aircraft for the first time, including a contingent of Wellingtons from 428 Squadron. 6 Group's three Halifax units contributed thirty aircraft, but their effort was largely in vain, as problems afflicting the Pathfinder Oboe element forced five of its Mosquitos to return early, and a sixth was lost. The subsequent sparse marking in cloudy conditions led to scattered bombing, and the city escaped with superficial damage. Most of the 428 Squadron participants landed at Marham in Norfolk on return. One note of concern for 6 Group on this night was a 10% rate of early returns, and this, together with a higher than average loss rate over a considerable period, would characterize the opening phase of its operational career. In time this would change, and by war's end, 6 Group would achieve an impressive record of efficiency and reliability, but in the meantime, crews saw little prospect of surviving a tour of thirty operations. Disappointing raids on Berlin on the 27/28th and 29/30th sandwiched another accurate assault on St Nazaire, in which the Group's Halifax units played a relatively minor part, putting up just fifteen aircraft between them. All of the 428 Squadron participants landed safely, although mostly away from Dalton, and a number reported witnessing a bomber coned by searchlights and then shot down in flames over the target. While the four-engine brigade went to Berlin on the 29/30th, 149 Wellingtons carried out a diversionary raid on Bochum in the Ruhr. 428 Squadron was involved, and two of its Wellingtons failed to return. BK564 crashed in Germany, killing Sgt Cartier and two of his crew, and another succumbed to his injuries while in captivity two weeks later. The sole survivor also fell into enemy hands. An SOS message was picked up from HE175 stating it was ditching in the North Sea, but that was the last to be heard of Sgt Martyn and his crew. Neither of the night's efforts proved successful, but failures over the Ruhr would soon be the exception rather than the rule. It had taken some time for 428 Squadron to register its first failure to return, but it would now be subject to a steady rate of attrition over the following two months.

April would be the least rewarding month of the Ruhr offensive, largely because of the number of operations directed at targets outside of the region, and beyond the range of Oboe. It began for some 6 Group squadrons on the 2/3rd with participation in the final small-scale operation against Lorient under the January directive, and three days later the Command was released from further responsibility. The month began in promising fashion for the Command generally, with another successful tilt at Essen on the 3/4th, when, in clear conditions, over six hundred buildings were destroyed in central and western districts. 428 Squadron was not called into action on this night, but was in action on the following night, when Harris

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dispatched 577 aircraft, the largest non-1,000 force to date, to Kiel. Sadly, the massive effort was not rewarded with success, as heavy cloud, strong winds and decoy fire sites conspired to nullify the Pathfinder attempts to mark the target accurately, and only eleven buildings were destroyed by the few bombs finding the mark. HE432 crashed off the Dutch coast, and F/O Tighe and his crew were all killed. Sgt Chepil and crew returned in HE176 to claim a BF109 destroyed, and S/L Bowden brought back a damaged port wing courtesy of a balloon over the target. Almost four hundred aircraft were sent back to Duisburg in difficult weather conditions on the 8/9th, when 27% of the 6 Group participants returned early. Cloud over the target reduced the attack to a shambles, and at least fifteen other Ruhr towns reported bombs falling on and around them. The Wellington containing the 428 Squadron crew of Sgt Williamson was hit by flak, which blew off the rear turret with the occupant, Sgt Bertrand, inside, and he was killed. The rudder and hydraulics system were also damaged, but the aircraft returned without further incident. Less fortunate were P/O Buckham and his crew, who all fell into enemy hands after DF635 was shot down by a night fighter in the target area. A follow-up raid by Lancasters twenty-four hours later was equally unrewarding as Duisburg's charmed life continued. Frankfurt had also proved a difficult target to hit effectively, and a raid by five hundred aircraft on the 10/11th went the way of the others. A few bombs fell in the suburbs, but this was a poor return for the effort of mounting such a large-scale operation and the loss of twenty-one aircraft. 428 Squadron welcomed back all of its crews on this night.

Stuttgart was the target for over four hundred aircraft on the night of the 14/15th, when the Pathfinders claimed to have marked the centre of the city, but the main weight of bombs was concentrated in the north-east along the line of approach. The creep-back phenomenon could work for or against the success of an attack, and on this night it was for. The bombing spread across one industrial suburb and two of a more residential nature, and almost four hundred buildings were destroyed. The route to and from Stuttgart required a long flight across France, and enemy night fighters were waiting on the return leg to catch the unwary and tired crews. 428 Squadron's casualty occurred over Germany, however, and Sgt Harris died in the wreckage of HE176, while his four crew mates were taken into captivity. The 16/17th proved to be a night of heavy operational activity, when Harris sent over three hundred Lancasters and Halifaxes to distant Pilsen in Czechoslovakia to bomb the Skoda armaments works, and a diversionary force of predominantly Stirlings and Wellingtons to Mannheim. Confusion over the Pathfinder route markers led to a complete failure at Pilsen, from which thirty-six aircraft, eighteen of each type, failed to return. The Mannheim force also lost eighteen aircraft, none from among the 428 Squadron contingent, but four Ghosts returned early for various reasons. The total of fifty-four missing aircraft from the two operations represented the Command's highest loss in a single night to date.

During a nine-night break for the Ghosts and many other squadrons, the port of Stettin, located right at the eastern end of Germany's Baltic coast, hosted a successful attack by three hundred four-engine heavies on the 20/21st. It was perhaps the only urban target in Germany never to escape lightly at the hands of the Command. On this night it suffered the destruction of thirteen industrial premises and 380 houses in an area of devastation in its central districts estimated at a hundred acres. Fellow Canadian unit, 405 (Vancouver) Squadron, made its Pathfinder debut at Duisburg on the 26/27th, its crews acting as supporters, and carrying only

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bombs to “beef-up” the Pathfinder presence. In time they would graduate to the role of backers-up, in which they would maintain the aiming point with fresh target indicators throughout the course of the raid. Experienced crews became illuminators, blind markers and ultimately visual markers, if they were able to survive and reach the required standard. The force of 561 aircraft taking off between midnight and 01.00 hours included a contingent from 428 Squadron. At the target the Oboe ground marking appeared to progress according to plan, crews returning at dawn reporting fires visible from a hundred miles away, and a pall of smoke hanging over the city. However, photographic reconnaissance later revealed the main weight of the attack to have fallen across the north-eastern districts, where three hundred buildings were destroyed. 428 Squadron’s HZ365 crashed in Germany, killing Sgt Coutts and three of his crew, while the sole survivors became a PoW. Two other crews reported encounters with night fighters and another of being hit by flak. Ghost crews joined in a mining operation around the Frisians on the following night to conclude its activity for the month, and had to post missing two more crews. HE543 and HE728 were both lost in the sea, and there were no survivors from the crews of Sgt Parkinson and Sgt Radcliff respectively. The last night of the month brought the fourth raid of the campaign against Essen, for which three hundred aircraft were prepared. As the target was expected to be cloud-covered, Oboe Mosquitos were to drop sky markers for the following main force crews. It was impossible to assess the results of the bombing during the operation, and Harris had to wait for reconnaissance photographs. These showed fresh damage right across the city, with further hits on the Krupp works, but no point of concentration, and many other Ruhr towns again found themselves under the bombs.

May was to see a return to winning ways with a number of spectacular successes. Operations began at Dortmund on the 4/5th, for which a new record non-1,000 force of 596 aircraft took off in the late evening. It was the first large-scale raid of the war on this city, and it opened in promising fashion with accurate Pathfinder marking. Some of the Pathfinder backers-up allowed their markers to fall short as the attack progressed, and a decoy fire site also drew off a proportion of the effort. Despite this, at least half of the bomb loads fell within three miles of the aiming point, inflicting extensive damage in central and northern districts. More than twelve hundred buildings were classed as totally destroyed, while two thousand others were seriously damaged, and the death toll of around seven hundred, which included many prisoners of war, was the highest yet at a German urban target. It was not a one-sided affair, however, as the defenders fought back fiercely to claim thirty-one bombers. Three 428 Squadron crews returned early, and two others failed to return altogether. HE864 fell victim to a night fighter over Holland, and Sgt Johnson died with one other, while HE727 also went down over Holland, killing W/O Moulton and two of his crew. The total of five survivors from the two aircraft were taken into captivity.

For the following week minor operations held sway, allowing the Pathfinder and main force squadrons to concentrate on training. It was not until the night of the 12/13th that the next major raid was mounted, and this was the fourth attempt of the Ruhr offensive to deliver a telling blow on Duisburg, Germany’s largest inland port. 572 aircraft took off, and for once, everything proceeded according to plan, accurate Pathfinder marking being exploited by the main force, which followed up with concentrated bombing of the city’s central districts and

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the port area. Almost sixteen hundred buildings were reduced to rubble, a number of important war industry factories were hit, and sixty thousand tons of shipping was either sunk or damaged in the port. The value of the region to the German war effort always guaranteed a hot reception for the crews, however, and the Ruhr would come to be known as "Happy Valley". A record loss for the campaign to date was sustained on this night of thirty-four aircraft. Among them were two more from 428 Squadron, and neither produced a survivor from the crews of Sgt Hatch and Sgt Mann. HE321 was shot down by a night fighter over Holland, and HE656 crashed off the French coast. On the following night over four hundred aircraft from all but 5 Group raided Bochum to moderately good effect, despite decoy markers drawing off some of the effort. Almost four hundred buildings were destroyed in return for the loss of twenty-four bombers, none of which was from 428 Squadron. A nine-day lull in main force operations followed, and it was during this period, on the 16th, that 420, 424 and 425 Squadrons prepared for a tour of duty overseas by dispatching their ground crews to Tunisia by sea. The ferrying of aircraft would begin on the 5th of June, and by the 23rd all would be installed at Kairouan to begin operations three days later as 331 Wing. Also during this break in main force activities 617 Squadron entered bomber folklore with its epic attack on the dams on the 16/17th, a raid in which many Canadians played their part magnificently. A number of 6 Group squadrons were engaged in mining on this night around the Frisians and St Nazaire, and 428 Squadron took part without loss. Another four Ghosts carried out mining sorties two nights later, and then a contingent joined forces with elements of 426, 429 and 431 on the 21/22nd to lay mines around the Frisians on the 21/22nd. HE899 disappeared without trace with the crew of Sgt Magnusson, while HE177 overshot its landing on return, and Sgt Simpson perished in the ensuing crash with three of his crew.

Refreshed and replenished, the Pathfinder and main force crews returned to the fray with another record non-1,000 raid against Dortmund on the 23/24th. A massive number of 826 aircraft took off, and those reaching the target delivered a stunning blow on this important industrial city, leaving central northern and eastern districts devastated by accurate bombing, and two thousand buildings, mostly houses, in ruins. Industrial premises also took a pounding, and a large steel works was put out of action. Bomber losses continued to climb, and this night saw thirty-eight fail to return, almost half of them Halifaxes. Two nights later over seven hundred aircraft attacked Düsseldorf, and failed to find the mark in a major operation for the first time during the month. Two layers of cloud prevented the Pathfinders from identifying the aiming point, and decoy markers and fire sites may have attracted a large number of bomb loads. The result was a widely scattered raid, which destroyed no more than a hundred buildings, and the death toll among the crews far exceeded that on the ground. 428 Squadron's HZ476 crashed in Belgium with no survivors from the crew of Sgt Pepper. The fifth raid of the campaign on Essen took place on the 27/28th, and involved a little over five hundred aircraft. The target was cloud-covered, and the use of skymarking led to scattered bombing across central and northern districts. Almost five hundred buildings were nevertheless destroyed for the loss of twenty-three aircraft. It became another bad night for the Ghosts after HZ485 was lost without trace with the crew of F/S Thompson. MS481 lost an engine over the target, and was then hit by flak over the enemy coast on the way home. Sgt Lachman ditched the Wellington off the Lincolnshire coast near Grimsby, and it sank within two minutes,

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taking the rear gunner with it. The remainder of the crew survived to be rescued, but their reprieve would be short-lived.

The final operation of the month was mounted on the 29/30th against the town of Barmen, which, with its twin Elberfeld, forms Wuppertal. Over seven hundred aircraft set off on that Saturday night either side of 23.00 hours, and delivered one of the two most devastating attacks of the entire offensive. Concentration was always the key to success, and both the Pathfinder marking and main force bombing satisfied this criterion. The narrow streets in the old centre soon became engulfed in a fire, which ran out of control, and would ultimately account for 80% of the town's built-up area. Fire and blast destroyed four thousand houses, five of the six largest factories and scores of other industrial premises. Almost nineteen hundred other buildings, mostly houses, were left seriously damaged, and the death toll was eventually set at 3,400 people. Some of the shocked and homeless residents of Barmen might have been cheered by the news, that thirty-three aircraft carrying around 250 of their tormentors would not be returning to England that night, but it would have been scant consolation. 428 Squadron concluded an unhappy month with another two failures to return, HE319, which was lost without trace with the crew of Sgt Shelnutt, and LN424, which caught fire and was abandoned over enemy territory by all but the pilot. Sgt Ferguson carried out a forced-landing, and he and his crew were taken into captivity.

On the 31st 2 Group carried out its final operations as part of Bomber Command. Since the outbreak of war it had carried the fight to the enemy predominantly by daylight, and in generally outdated and outclassed aircraft. Only with the advent of the Boston, Mitchell and, most crucially, the Mosquito, had its crews been blessed with equipment up to the task. The raw "courage by daylight" displayed by its crews in the finest traditions of the Service, particularly during 1940 and 41, remains unsurpassed. 2 Group no longer fitted comfortably into an organization committed to transporting the maximum tonnage of bombs to Germany by night, and on the 1st of June it became the nucleus of the 2nd Tactical Air Force, with which its outstanding tradition would continue. Also on the 1st 428 Squadron moved to Middleton-St-George, which it would share with 419 Squadron for the remainder of the war, and prepared to take on Halifaxes. That night 428, 431 and 432 Squadrons laid mines in the waters around the island of Texel, and then, like the other heavy units, the Ghosts settled down to enjoy nine nights away from the action.

At around 23.00 hours on the 11th of June over 780 aircraft set off for Düsseldorf, while seventy-two other 8 Group crews took part in a massed H2s trial at Münster. An errant Oboe marker fourteen miles from the main target inevitably caused some bomb loads to be wasted in open country, but the bulk of the effort fell into the city's central districts, where around forty square kilometres were severely affected by fire. Over fourteen hundred separate large fires were recorded, dozens of factories suffered a complete or partial loss of production, and eight ships were either sunk or damaged in the inland port. In human terms almost thirteen hundred people lost their lives, while a further 140,000 were bombed out of their homes. The death toll among the bomber crews was also high, as the losses equalled the campaign's highest to date of thirty-eight. 428 Squadron's casualty occurred right at the start of the operation, when HE322 crashed almost immediately after taking off, killing four of the

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occupants and injuring the pilot. This was the crew of Sgt Lachman, who had ditched off Grimsby two weeks earlier and lost their rear gunner to the North Sea. This was the final operation conducted by 428 Squadron on Wellingtons. On the following night Oboe enabled the centre of a cloud-covered Bochum to be accurately bombed, and this resulted in an estimated 130 acres of destruction. Twenty-four crews paid the price for this success, as 428 Squadron remained off the order of battle working up to operational status on the Halifax. A further seventeen aircraft were missing from an all-Lancaster heavy force, which pounded Oberhausen on the 14/15th, and this amounted to a hefty 8.4% of those dispatched.

1, 5 and 8 Groups delivered a moderately useful attack on Cologne on the 16/17th, and then it was the turn of the Lancasters to stay at home, while Halifaxes and Stirlings of 3, 4, 6 and 8 Groups attempted the precision bombing of the Schneider armaments works at Le Creusot in France on the 19/20th. This had been the scene of an epic daylight raid by 5 Group in the previous October, when only moderate success had been achieved against the factory buildings. A second target, the nearby transformer station at Montchanin, had been targeted then by a small formation led by W/C Guy Gibson, who was commanding 106 Squadron at the time, but it escaped virtually intact. This operation signalled the return to action of 428 Squadron as a Halifax unit. The problem in 1943 was that main force crews were not used to bombing small targets, and they found great difficulty in identifying their aiming points on this night. The result was that only 20% of the bombs hit the factory at Le Creusot, while the crews of the second force misidentified the transformer station, and it again remained intact.

A hectic round of four operations in five nights began at Krefeld on the 21/22nd, when over seven hundred aircraft were dispatched. The Pathfinder marking was flawless, and most of the 619 main force crews delivered a total of 2,300 tons of bombs with great accuracy and concentration within three miles of the aiming point. The central districts became a raging inferno, which consumed 47% of the city's built-up area, and more than five and a half thousand houses were destroyed. A thousand people were killed on the ground, but the attackers also suffered heavy losses at the hands of night fighters, which found their prey easily in the moonlight. Forty-four aircraft were shot down, a new record for the campaign, and six of them were from 35 Squadron, one of only two Pathfinder units equipped with Halifaxes. 428 Squadron posted missing its first Halifax crew, although the aircraft actually belonged to 419 Squadron. Sgt Pearce and two of his crew were New Zealanders, while the flight engineer was a Canuck and the others were British, but all died together when W1271 crashed in Holland. On the following night 557 aircraft set off for Mülheim, where another outstandingly accurate attack developed, which left devastation in central and northern districts, and in the eastern districts of the neighbouring town of Oberhausen. Over eleven hundred houses were destroyed, a further twelve thousand were damaged to some extent, and scores of industrial and public buildings were also hit, disrupting war production and city administration. 64% of Mülheim's built-up area was estimated as destroyed, but the Command again paid a heavy price for its success, the losses amounting on this night to. thirty-five. 428 Squadron did not take part, but joined forces with 419 Squadron to send ten aircraft to lay mines in the Frisians.

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After a night's rest, and a month after the destruction of Wuppertal's Barmen, over six hundred aircraft turned their attention upon its twin, Elberfeld. Despite a modest creep-back the majority of the main force crews exploited the accurate Pathfinder marking, and their bombs destroyed three thousand houses and 171 industrial premises. Thousands of other buildings were severely damaged, and the death toll reached eighteen hundred people. When the smoke had cleared, photographic reconnaissance revealed that at least 90% of the town had been reduced to rubble. On the debit side the Command lost another thirty-four aircraft and crews, and 428 Squadron was again represented. Sgt Whitfield and crew borrowed JD258 from 419 Squadron, and failed to hand it back after being shot down by a night fighter with fatal consequences for all on board. The run of successes came to an end at the oil town of Gelsenkirchen on the 25/26th, when, in an echo of the past, bombs were sprayed liberally around the Ruhr. It had always been among the most elusive of targets, and on this occasion malfunctioning Oboe equipment contributed largely to the failure, which cost another thirty aircraft. 428 Squadron sent a contingent, and all returned home without major incident.

There were no operations over the succeeding two nights as Harris prepared for a three raid series against Cologne spanning the turn of the month. 428 Squadron had now completed its work for June, and did not contribute to a force of 608 aircraft, which took off for the Rhineland Capital late on the 28th. Despite cloud cover over the target, the failure of Oboe equipment in five out of the twelve Mosquitos and the use of skymarking, which was late in starting, Cologne was subjected to its most destructive assault of the war. The degree of devastation far exceeded that inflicted by the Thousand Force a year earlier, and, in fact, almost twice as many buildings were completely destroyed. The death toll of over 4,300 people was a thousand more than the previous highest, recorded at Barmen a month before. The second Cologne raid was mounted on the night of the 3/4th of July, and involved 650 aircraft. This attack was aimed at that part of the city situated on the east bank of the Rhine, and it was again stunningly successful, reducing a further 2,200 houses to ruins, along with twenty industrial premises. Thirty aircraft were lost, to add to the twenty-five missing from the earlier raid, but the 428 Squadron participants all got back, although 2Lt Knapp was forced to belly-land his Halifax at base. The series against Cologne concluded at the hands of an all-Lancaster force on the 8/9th, again with great success, and this attack reduced over 2,300 houses and nineteen industrial premises to rubble. Later, when the city authorities were able to assess the results of these three raids, they documented more than eleven thousand buildings destroyed, five and a half thousand people killed, and 350,000 others bombed out of their homes. The mini campaign had cost the Command sixty-two aircraft and crews, at an average of almost twenty-one per operation, which, in the light of recent experiences, was relatively modest.

Another disappointing operation was played out at Gelsenkirchen on the 9/10th, during which DK229 was hit by flak. Two engines failed, and S/L Bowden ordered his crew to bale out while they were still over Germany. Five of them fell into enemy hands, and a sixth evaded capture, but the pilot died in the ensuing crash. Although two more operations to the region would take place in the final week of the month, this effectively brought the Ruhr offensive to an end. Harris could look back upon the past five months with a genuine sense of achievement, and take particular satisfaction from the performance of Oboe. Much of

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Germany's industrial heartland now lay in ruins, and it must have been clear to the civilian population that this was only the start. There was so much slack in the German industrial capacity, however, that production could still increase dramatically over the next twelve months. That apart, the disruption had been massive, and would be further exacerbated by the dispersal of industry to safer regions of the Reich. Losses to the Command of aircraft and crews had been grievously high, but the factories and flying training schools were more than keeping pace with the rate of attrition, and even allowed for an expansion in many squadrons by the addition of a third flight. Buoyed up by his success, Harris sought an opportunity to deliver a knockout blow against one of Germany's premier cities, to send shock waves to rock the foundations of Nazi morale. Having been spared by the weather from hosting the first thousand-bomber raid at Cologne's expense, Hamburg now presented itself as the ideal objective for the aptly named Operation Gomorrah.

In the meantime, an all-Lancaster force raided Turin on the 12/13th, and then Halifaxes, Wellingtons and Stirlings formed the main force for an attack on Aachen on the following night. Both were highly successful operations, the latter particularly so, resulting as it did in the destruction of almost three thousand buildings. It was a bad night for 428 Squadron, which resulted in three crews failing to return. DK257 was shot down by a night fighter over Holland on the way to the target, and two of the crew perished in the wreckage, while F/L Morgan and three of his crew were captured and another evaded a similar fate. DK228 was a night fighter victim over Belgium, and there were no survivors from the crew of F/L Weeks. Finally, EB209 was hit by flak after bombing and was eventually abandoned over Belgium by P/O Ross and his crew, two of whom managed to retain their freedom. On the 15/16th an all-Halifax main force from 4 Group was sent to Montbeliard in south-eastern France to attack the Peugeot motor works. Sadly, the target indicators were not accurately placed, and most of the bombs fell into the town of Sochaux, of which Montbeliard was a suburb. This was an ever-present danger, despite a relatively low bombing altitude, and in the pre-invasion campaign from March to June 1944 such "friendly fire" incidents would be frequently re-enacted.

There now followed a lull in main force operations as preparations continued for the forthcoming assault on Hamburg. Many factors had to be considered when mounting a series of operations, not least of which was the reason behind it. The morale of Germany's civilian population had been a documented War Cabinet priority since July 1941. To achieve maximum effect throughout the Reich, rather than simply locally, the objective required political status beyond the norm. Berlin, as the Capital, clearly satisfied that requirement, but Harris was not quite ready to take on such a massive undertaking at this juncture. As Germany's Second City, Hamburg was next in line, particularly as Cologne, its third great city, had only recently been devastated. There were, however, other considerations of a more operational nature, which pointed to Hamburg as the ideal choice. Firstly, it was a major industrial city, and was particularly important to Germany for its ship and U-Boat construction. Secondly, it could be approached from the sea without the need for the bomber stream to traverse great tracts of hostile territory. It was also close enough to the bomber stations to allow a large force to get in and out in the few hours of darkness afforded by mid summer. Thirdly, situated as it was beyond the range of Oboe, which had proved so decisive

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at the Ruhr, it boasted the wide River Elbe through its centre to provide a strong H2s signature for the navigators high above. The final week of July had become the traditional time to attack Hamburg, and so it was now, and as the crews prepared for the first operation on the afternoon of the 24th, a new device was being loaded into their aircraft. Window had actually been devised a year earlier, but its use had been vetoed in case the enemy copied it for use against Britain. Ironically, the German scientists had already developed their own version known as Düppel, which had also been withheld for the same reason. It consisted of aluminium-backed strips of paper packed in bundles, which, when released into the air stream, floated slowly to earth in giant clouds. This swamped the enemy radar system with false returns, making it impossible for night fighter, searchlight and flak crews to identify and lock on to a genuine target. Windowing would begin at a predetermined point over the North Sea on the way in, and continue throughout the raid until a second point was reached on the way out.

A force of 791 aircraft stood ready for take-off in the late evening of the 24th, and the outward flight was relatively uneventful, as the bombers made little or no contact with enemy night fighters. A number of aircraft were shot down during this stage of the operation, but each was off course and outside of the protection of the bomber stream. The efficacy of Window was immediately apparent to the crews on their arrival in the Hamburg defence zone, where the usually efficient co-ordination between the searchlights and flak batteries was absent. The defence was accordingly random and sporadic, thus giving the Pathfinder crews a rare, almost unhindered run at the aiming point. The markers were a little scattered, but most fell close enough to the city centre to provide a strong reference point for the main force crews, and over the next fifty minutes, almost 2,300 tons of bombs were delivered. The bombing began near the aiming point, but a pronounced creep-back developed, which cut a swathe of destruction from the city centre along the line of approach across the north-western districts, and out into open country, where a proportion of the effort was wasted. Never the less, it was a highly destructive attack, in which fifteen hundred people lost their lives, and this was the highest death toll at a target beyond the range of Oboe. An added bonus for the Command was the loss of a very modest twelve aircraft, for which much of the credit belonged to Window. At a stroke the device had rendered the entire enemy defensive system impotent for the time being. An advantage was rarely held for long, though, before a counter-measure was found, and this would eventually see the balance swing back in the enemy's favour. 428 Squadron came through unscathed, but three crews returned early for various reasons. Harris decided to switch his attention to Essen on the following night to take advantage of the body blow dealt to the enemy's defences by Window. The result was another highly accurate and concentrated assault on this city, where the Krupp complex sustained its heaviest damage of the war, and over 2,800 houses and apartment blocks were destroyed. 428 negotiated the operation without loss.

After a night's rest 787 aircraft took off to return to Hamburg for round two of Operation Gomorrah. What followed their arrival over the city was both unprecedented and unforeseeable, and was the result of a lethal combination of circumstances. A period of unusually hot and dry weather had left tinderbox conditions in parts of the city, and the initial spark to ignite the situation came with the Pathfinder markers. These fell two miles to the east of the planned city centre aiming point, but with unaccustomed concentration into the densely

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populated working class residential districts of Hamm, Hammerbrook and Borgfeld. The main force crews followed up with uncharacteristic accuracy and scarcely any creep-back, and delivered most of their 2,300 tons of bombs into this relatively compact area. The individual fires joined together to form one giant conflagration, which sucked in oxygen from surrounding areas at hurricane velocity to feed its voracious appetite. Such was the ferocity of this meteorological phenomenon, that trees were uprooted and flung bodily into the flames, along with debris and people, and the temperatures at its seat exceeded one thousand degrees Celcius. The inferno only began to subside once all the combustible material had been consumed, and by this time, there was no one left within the firestorm area to rescue. It would actually be weeks before many of the burned-out buildings had cooled sufficiently to allow access to basements, where some of the more gruesome finds would be made, and an accurate assessment of casualties could begin. At least forty thousand people died on this one night alone, and on the following morning the first of an eventual 1.2 million inhabitants began to file out of the tortured city.

Another night's rest preceded the third Hamburg raid, for which a force of 777 aircraft took off, among them a contingent from 428 Squadron. Early returns had reduced the numbers to 707 by the time the target was reached, but these carried another 2,300 tons of bombs to deliver onto the city centre. The Pathfinders were again two miles east of the aiming point with their markers, which fell a little to the south of the firestorm area. The main force approached the markers on a north-south heading, and a creep-back developed as some crews bombed the first markers or fires they encountered. This took the bombing across the firestorm devastation of two nights earlier, before it fell onto other residential districts beyond, where a new area of fire was created, although of lesser proportions. The city's fire service was already exhausted, while access to the freshly afflicted districts was denied by rubble-strewn and cratered streets, and there was little to be done other than to allow the fires to burn themselves out. The defences were beginning to recover from the shock of Window, however, and as they did so the bomber losses began to rise. Twenty-eight aircraft failed to return on this night, on top of the seventeen resulting from the firestorm raid. The Ghosts lost DK239, which fell to a night fighter over Germany, killing Sgt Bates and all but one of his crew, the survivor ending up as a PoW. Ten crews landed away because of the weather conditions at base. On the following night, the 30/31st, a relatively modest force of under three hundred Halifaxes, Stirlings and Lancasters, including a contingent from 428 Squadron, devastated the previously unbombed Ruhr town of Remscheid. They destroyed over three thousand houses, laid waste to 83% of its built-up area and killed eleven hundred inhabitants, and this operation brought down the final curtain on the Ruhr offensive.

During the course of the 2nd of August two Ghost Halifaxes conducted a sea search, but sighted nothing and returned to base. Operation Gomorrah was concluded on the night of the 2/3rd of August, when 740 aircraft departed their stations and headed into violent electrical storms on the route to northern Germany. This persuaded many crews, among them six from 428 Squadron, to abandon their sorties, and either jettison their bombs over the sea or drop them on alternative targets. Some crews pressed on to Hamburg, but the bombing was scattered in the absence of target indicators, and little further damage was inflicted upon the city. Thirty aircraft were lost, and two of them were from 428 Squadron. EB212 was on the

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way home when it crashed into the sea, and took with it the eight man crew of P/O Sylvester. With the exception of the second pilot they were on the twenty-eighth sortie of their tour and only two away from being screened. EB274 was the operation's final victim, and was lost without trace with the eight-man crew of Sgt Chepil, almost certainly as the result of an encounter with a night fighter over the sea. Three other 428 Squadron aircraft were hit by flak, but none sustained serious damage. The Ghosts took part in all four of the Hamburg raids suffering three losses from sixty-two sorties. There were no further operations during the first week of August, but something of future significance for Canadian squadrons took place in their homeland on the 6th. This was the day selected for the naming ceremony of the very first Canadian built Lancaster, KB700. The occasion was turned into a massive media event with live coverage on the radio, and a commentary provided by the actor Lorne Greene. The minister for munitions and supply declared the Lancaster the "greatest weapon of destruction that Canada had produced during the war." The name, Ruhr Express, was bestowed upon the aircraft by Mrs C G Power, wife of the minister for National Defence for Air, and the impression was given by the general hype, that it would immediately take-off for England and war against tyranny. Ruhr Express did, indeed, take off, with S/L Reg Lane at the controls, he having returned to Canada at the completion of his second tour of operations and term as flight commander with 35 Squadron. Far from flying to England, however, KB700 was barely able to fly anywhere. She was short of vital instruments and equipment, but in a country seeking to demonstrate its industrial prowess, and in view of the publicity, a postponement of the show was unthinkable. Lane flew the Lancaster to Dorval, Quebec, where the outfitting was completed, and he would indeed, in time, fly KB700 to England.

The second week of August began with the first of a series of raids on the major cities of Italy, which was now teetering on the brink of capitulation. Bomber Command's involvement was designed to help nudge it over, and elements of 1, 5 and 8 Groups began the process on the night of the 7/8th with attacks on Genoa, Milan and Turin. On the 9/10th over 450 crews took off for a raid on Mannheim on the east bank of the Rhine in southern Germany. A solid marking effort contributed to a highly effective attack, which destroyed thirteen hundred buildings, and caused loss of production at forty-two factories for the modest loss of nine aircraft. 428 Squadron's Sgt Harrison returned early after his Halifax was raked from stem to stern by cannon fire from a BF109, seriously wounding the flight engineer and wireless operator. Twenty-four hours later it was the turn of Nuremberg to suffer its most effective raid to date at the hands of around six hundred aircraft. Considerable damage resulted in central and southern districts, where preserved medieval houses were destroyed, and a large area of fire developed. Most of the 428 Squadron participants landed away on return. The Italian campaign continued at Milan and Turin on the 12/13th, and returning crews claimed heavy and concentrated attacks. 428 Squadron took part in the former, and some of its crews landed away because of fuel shortage. Milan was hit again on the 14/15th and 15/16th, and the campaign concluded at Turin on the 16/17th. This was a 3 and 8 Group show, but despite the enthusiastic claims at debriefing it was an inconclusive raid. The weather on return forced many 3 Group crews to divert to other airfields, and a goodly number would not regain their stations until quite late on the 17th, too late to take part in one of the most important operations of the war that night.

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Since the start of hostilities, intelligence had been filtering through concerning German research into rocket weapons. Through the interception and decoding of signals traffic the centre for such activity was found to be at Peenemünde, an isolated location on the island of Usedom on Germany's Baltic coast. Regular reconnaissance flights helped to build up a picture of the activity there, and through listening in on signals, the brilliant scientist, Dr R V Jones, was able to monitor the V-1 trials being conducted over the Baltic, and gather much useful information on the weapon's range and accuracy. Churchill's chief scientific adviser, Professor Lindemann, or Lord Cherwell as he became, steadfastly refused to give credence to rockets as weapons, and even when confronted with a photograph of a V-2 on a trailer at Peenemünde, taken by a PRU Mosquito as recently as June, he stubbornly remained unmoved. It required the urgings of Dr Jones and Duncan Sandys to persuade Churchill of the need to act, and it was finally agreed that an operation should be mounted at the first available opportunity. This arose on the night of the 17/18th of August, for which a detailed plan was meticulously prepared.

The Peenemünde research and development establishment consisted of three main areas, the housing complex where the scientists and workers lived, the assembly buildings, and the experimental site. Because of this the operation was to take place in three waves, each wave assigned to a specific aiming point, beginning with the housing estate, and the Pathfinders were charged with the heavy responsibility of shifting the point of aim accordingly. 3 and 4 Groups were to go in first, followed by 1 Group, while 5 and 6 Groups would bring up the rear at the experimental site. The entire operation was to be controlled by VHF by a Master of Ceremonies, or Master Bomber, in the manner pioneered by Gibson at the Dams, and the officer selected was G/C Searby of 83 Squadron, who had been Gibson's successor as commanding officer of 106 Squadron. Two deputy Master Bombers were appointed to assist Searby, and to take over if he was lost or forced to return early. W/C Fauquier was the first deputy, and he would be flying 405 Squadron's first Lancaster sortie. W/C John White, a highly experience Pathfinder and flight commander with 156 Squadron, was the second deputy, sadly, a man with only three months to live. All three Master Bombers and their crews would be required to remain in the target area throughout the raid within range of the defences, directing the marking and bombing, and exhorting the crews to press home their attacks. A spoof raid on Berlin by eight Mosquitos of 139 Squadron an hour before zero hour at Peenemünde was intended to draw off the enemy night fighters, and provide the crews with a clear run at the target, where the bombing would be conducted from medium to low level.

597 aircraft answered the call for a maximum effort, the numbers somewhat depleted by the unavailability, as already mentioned, of a proportion of the Stirling brigade. Most aircraft got away between 21.00 and 22.00 hours, and set course in clear conditions for southern Denmark. The initial marking of the housing estate went awry, when the first markers fell onto the forced workers camp at Trassenheide, more than a mile beyond the intended aiming point. This inevitably attracted a proportion of the 3 and 4 Group element, and about a third of them delivered their bombs here, inflicting heavy casualties upon the friendly foreign nationals trapped inside their wooden barracks. W/C White, the second deputy Master Bomber, used his reserve markers at this stage to help pull the bombing back on track. Once rectified, this phase of the operation proceeded according to plan, and a number of important

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members of the establishment's technical staff were killed. The 1 Group attack on the assembly sheds was hampered by a strong crosswind, and such was the layout of the establishment, that bombs either found the mark, or fell harmlessly among dunes or into the sea. Ultimately, this area too sustained severe damage, leaving just the experimental site for 5 and 6 Groups. It was at this point, that the night fighters arrived belatedly from Berlin, and proceeded to take a heavy toll of aircraft both in the skies over Peenemünde, and on the route home towards Denmark. The 5 Group crews were authorized to adopt their "time and distance" method of bombing if the target became obscured by smoke, and some did so, although this was perhaps the least effective part of the operation. W/C White had used his target indicators at a critical time during the operation, but W/C Fauquier retained his, and delivered his bombs in the final minute of the raid. During his time in the target area he made seventeen passes, and exhorted the crews to press home their attacks.

Forty aircraft failed to return home, and twenty-nine of these were 5 and 6 Group aircraft from the final wave. 428 Squadron dispatched fourteen Halifaxes, all of which bombed the target, but three then went missing during the return flight. EB211 and the crew of Sgt Sheridan found a watery grave in the Baltic, and DK230 also went down there, taking with it the crew of F/L Fanson, who were on their twentieth operation. At the identical stage of their tour was the crew of F/S Blackmore in DK238, which crashed in northern Germany killing the pilot and one other, and delivering the surviving five men into enemy hands. The surviving Ghosts all landed at Bassingbourne on return. The operation was sufficiently successful to set back the development programme of the V-2 by a number of weeks, and the testing was ultimately moved eastwards into Poland. The vulnerability of Peenemünde to air attack caused a major rethink by the German authorities, and it was decided to move the production of secret weapons underground. Almost immediately, construction of an underground factory began at Nordhausen, and once completed, thousands of slave workers would be installed and treated with great brutality.

Harris had long believed, that Berlin, as the seat and symbol of Nazi power, held the ultimate key to victory. He maintained the belief that bombing alone could win the war, and if this could be achieved, it would remove the need for the kind of protracted and bloody land campaigns that he had personally witnessed during the Great War. At the time it was a perfectly reasonable theory, and Harris was the first commander in history in a position to put it to the test. It is only in the light of recent conflicts, that we know with absolute certainty of the necessity to physically occupy the enemy's territory, in order to gain complete submission. Before embarking on the first phase of what would be the longest and most bitterly fought campaign of the war, Harris sent 460 aircraft to Leverkusen in the Ruhr, where the IG Farben factory was the aiming point. Problems with Oboe led to a scattered and ineffective raid, which afflicted many neighbouring towns. 428 Squadron took part, three returning early, and all of the remainder returned without major incident. The campaign against Berlin began on the night of the 23/24th, and nothing before or after would come closer to breaking the Command's spirit. 727 aircraft took off for the Capital in mid evening, and on arrival the Pathfinders were confronted by the usual difficulties of trying to identify the city centre from the jumble of images on their H2s screens. In the event, they marked the southern outskirts of the city, and some of the main force crews approached from the south-west instead of a more

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southerly direction, thereby depositing many bomb loads onto outlying communities and open country. This would be a feature of the entire campaign, but at least on this night, considerable damage was inflicted on the southern districts, where 2,600 buildings were destroyed or seriously damaged, and this represented the best result yet at the "Big City". On the debit side the loss of fifty-six aircraft was a new record. Three 428 Squadron aircraft returned early, while DK267 was attacked by a night fighter during the outward flight somewhere near the Swedish frontier. The crew abandoned the stricken Halifax, but the wireless operator became lodged somehow in the forward escape hatch and was carried down to his death when it crashed in Sweden. F/S Read and one of his crew managed also to reach Swedish territory to be interned, but their colleagues fell into enemy hands. When W/O Edwards and crew returned home, they claimed a BF109 as destroyed.

In a desperate measure to counter the effects of Window the Luftwaffe had begun to employ single engine day fighters over the target, using the light from burning cities and searchlights to pick out the bombers. This "Wild Boar" system would eventually be combined with a running commentary for the standard night fighters, known as "Tame Boar", to produce a highly effective and lethal defence for the German homeland and its occupied territories.

A four-night break from operations allowed a little respite before the next major outing for the heavy squadrons, which was to Nuremberg on the 27/28th. This was not a successful operation, despite accurate early marking by the Pathfinders. A creep-back developed, which could not be corrected because of communications difficulties and problems with H2s sets among the 8 Group contingent. As a result most of the bombing hit open country, although there was a scattering across the south-eastern and eastern suburbs. Thirty-three aircraft failed to return, and again, one of them was from 428 Squadron. EB216 was shot down by a night fighter over Germany, killing Sgt Mitchell and four of his crew, while three others were taken into captivity. P/O Eaton came back with over fifty holes in his Halifax, but his gunners shot down the JU88 responsible. The twin towns of Mönchengladbach and Rheydt provided a much less distant objective for over six hundred aircraft on the 30/31st, and it was the first heavy assault on these frontier towns. It required the Pathfinders to shift the aiming point from one to the other during the course of the attack, and this was done without a hitch, enabling more than 2,300 buildings to be destroyed. For the fourth operation running 428 Squadron registered three early returns, but none of its crews was missing. It was back to the Capital for a force of over six hundred aircraft twenty-four hours later, with take-off around 20.00 hours. The presence of some cloud in the target area combined with H2s equipment failures to prevent accurate marking, and the target indicators fell well to the south of the intended city centre aiming point. An extensive creep-back extending some thirty miles back along the line of approach further reduced the effectiveness of the bombing, and the result was a disappointing attack, which destroyed less than a hundred buildings, while a ferocious defence claimed forty-seven aircraft. 428 Squadron had to post missing two crews, those of Sgts Este and Harrison in DK233 and DK249 respectively. The former caught fire on the way home after being hit by flak over Germany, and the pilot and two others were killed when it crashed. There were no survivors from the latter, which also crashed in Germany.

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The current phase of the Berlin offensive was concluded by an all-Lancaster force on the 3/4th of September, when four Pathfinder Mosquitos dropped spoof flares some distance from the route to attract the night fighters as the force approached the city from the north-east. The Pathfinders again mostly undershot the aiming point, and the main force crews inevitably did likewise, but some of the bombing did hit residential districts and the industrial suburb of Siemensstadt, where a number of war industry factories suffered a serious loss of production. In the absence of Stirlings and Halifaxes, which generally suffered higher percentage casualties, twenty-two Lancasters were shot down, and this represented almost 7% of those dispatched. Harris called a halt to the campaign at this point, possibly in response to the loss of 125 aircraft in just three operations.

428 Squadron opened its September account with mining sorties around the Frisians on the 2/3rd. With Berlin off the menu there were still plenty of other industrial cities in Germany to keep the crews busy, and on the 5/6th it was the turn of Mannheim and Ludwigshafen, which faced each other from the east and west banks of the Rhine respectively. Their location provided a perfect opportunity to use creep-back to good advantage, by approaching from the west, and marking the eastern half of Mannheim. A highly successful attack ensued, which proceeded exactly according to plan, and resulted in massive damage in both of the target cities. A thousand houses were destroyed in Ludwigshafen alone, and the important I.G Farben chemicals factory, which was engaged in synthetic oil production, was severely damaged. Bomber losses were again high, however, and reached thirty-four on this night, although none from 428 Squadron, whose F/S Pattinson and crew claimed an FW190 as destroyed. It was sometime during early September that S/L Lane ferried KB700 to England with the assistance of a ferry pilot. Lane had volunteered for a third tour of operations, despite having already completed fifty one sorties up to returning to Canada in July, and he would be joining 405 Squadron in October. A raid of moderate size against Munich on the 6/7th was rendered inconclusive by cloud, most crews having to bomb on estimated positions after a timed run from a lake south-west of the city. 428 Squadron's steady rate of attrition continued on this night with the failure to return of Sgt Brown and his crew in DK196. Engine trouble had forced them to turn back, and when it became necessary to put the aircraft down in France, the pilot lost his life, and his crew all became PoWs.

There were no further operations for the main force crews for the next eight nights, and it was the 15th when briefings took place for a raid on the Dunlop Rubber factory at Montlucon in central France. 368 crews from 3, 4, 6 and 8 Groups took off either side of 20.00 hours, and were met over the target by W/C "Dixie" Dean of 35 Squadron who was to control the operation as Master Bomber. He presided over an accurate attack, which left every building in the factory complex damaged, and all for the loss of just three aircraft. One of the two missing Halifaxes was LK913, which contained the crew of 428 Squadron's commanding officer, W/C Smith. They had been hit by falling incendiaries over the target, and had been forced to crash-land in France, where W/C Smith and three of his crew were captured, while four others managed to evade. The Ghosts welcomed a new commanding officer on the following day in the form of W/C Bill Suggitt, who was promoted from Flight commander. Twenty-four hours later a similar force tried to repeat the success at the important railway yards at Modane in southern France, which was on the main route into Italy. The location of the target in a steep

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valley thwarted the crews' best endeavours, however, and the operation failed. At least on this occasion there were no empty dispersals at 428 Squadron, once, that is, all of the crews had returned from Molesworth, where they had initially landed on return. Even so, in just a little over two months the squadron had lost sixteen crews, a number equivalent to its entire strength, and it would sacrifice a similar number over the next two months.

A series of four operations against Hanover began on the night of the 22/23rd. They would be spread over a four-week period, and it would prove to be a tough campaign. Over seven hundred aircraft took part in this first raid, including a contingent from 428 Squadron. Despite clear skies over the target the operation failed through a stronger-than-forecast wind, which drove the markers and bombing towards the south-eastern corner of the city. A diversionary raid by a small force of Pathfinder Lancasters and Mosquitos on Oldenburg near Bremen involved the dropping of much Window and many flares, and this possibly reduced the losses from the main raid. Even so, twenty-six aircraft were lost, among them LK635 and LK914 from 428 Squadron. The former was lost without trace with the crew of F/O McRae, while the later took the lives of F/O Jones and all but one of his crew. On the following night Mannheim hosted its second heavy assault of the month, this one aimed at its northern districts, which had escaped relatively lightly two and a half weeks earlier. Another heavy blow was delivered, which left over nine hundred houses, twenty industrial premises and a number of public buildings in ruins. Sadly, a small 8 Group diversionary raid on Darmstadt could not prevent the loss of thirty-two aircraft, and the Ghost's misery continued with the failure to return of two more of its own. Flak and a night fighter accounted for DK271 over Germany, and F/L Davis and two of his crew were the only survivors, albeit in enemy hands. There were no survivors from the crew of P/O Hadden in EB207. The next Hanover raid was undertaken by 678 aircraft on the 27/28th. The bombing was well concentrated, but inaccurately forecast winds caused it to be concentrated five miles north of the city centre, where it was wasted on outlying communities and open country. The disappointment was compounded by the loss of thirty-eight aircraft, plus another from a diversionary raid on Brunswick. 428 Squadron's problems began early, when severe icing conditions forced P/O Kogan and his crew to turn back early with a failed engine, and after baling his crew out over Lincolnshire, the pilot carried out a crash-landing at Ludford Magna. On return DK270 overshot its landing at Framlingham in Suffolk and crashed, killing four of the crew, while the pilot, Sgt Wilson, and one other were injured, and one man emerged from the wreckage without a blemish. That was the good news. The bad news was that three other crews would not be coming home. JB968 crashed in Germany killing the crew of F/O Sherback, EB215 was a shattered wreck in a Dutch field and contained the remains of Sgt Farmer and all but one of his crew after they were brought down by flak, and LK915 fell to a night fighter over Germany with just F/O Whalley and one of his crew surviving as PoWs. An effective attack on Bochum by over three hundred aircraft on the 29/30th ended the month, and there must have been much relief at Middleton-St-George when all of the 428 Squadron Halifaxes returned home.

There was a hectic start to October for the Lancaster squadrons, which were involved in six major operations during the first eight nights. The month's account opened at Hagen in the Ruhr on the 1/2nd, an outstandingly accurate attack based on Oboe skymarking, and forty-six

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industrial concerns were completely destroyed. On the following night over three hundred buildings were destroyed in Munich in a partially effective raid, before Halifaxes and Stirlings joined in at Kassel on the 3/4th. The blind markers overshot the aiming point, and pushed the main weight of the attack into the city's western suburbs and beyond. Two aircraft factories were hit, however, and one suburb became a sea of flame. 428 Squadron's month began almost as badly as the previous had ended, with two aircraft failing to return. EB213 and EB214 both crashed in Germany, the latter a victim of flak. W/O Edwards died with five of his crew in the former, and Sgt McArthur with one of his in the latter, while a total of seven men became guests of the Reich. EB210 survived an encounter with an FW190, but was declared damaged beyond repair after F/S Newton landed at Tangmere. Frankfurt suffered its first really destructive raid on the 4/5th at the hands of almost four hundred aircraft. The eastern half of the city and the inland docks sustained extensive damage, and an area of fire raged out of control, claiming many public and commercial buildings near the city centre. The squadron's LK931 was brought down by a night fighter over Germany during the outward flight, but F/S Harkins and his crew took to their parachutes, and the pilot and one other ultimately evaded capture.

A two-night break preceded an all-Lancaster attack on Stuttgart on the 7/8th, for which 1 Group's 101 Squadron operated its night fighter communications jamming ABC Lancasters for the first time in numbers. The operation was moderately effective, and the loss of a very modest four aircraft suggested a successful debut for the radio counter-measures element. From this point on a number of 101 Squadron Lancasters would be included in every major operation, even after the formation of 100 Group, which would be dedicated to the role from November. The third raid on Hanover took place on the following night, and for once at this target everything proceeded according to plan. A devastating attack ensued, in which most of the bombs fell within two miles of the city centre aiming point, destroying almost four thousand buildings, while thirty thousand others were damaged to some extent, and twelve hundred people lost their lives. All of 428 Squadron's participants arrived home, although F/S Armour's Halifax was missing two feet of its port rudder after a collision over the target.

The final Hanover raid took place on the 18/19th after a nine-night break for the heavy squadrons, and was an all-Lancaster affair. It became another failure when cloud prevented the Pathfinders from accurately pinpointing their position, and most of the bombs found open country at a cost of eighteen Lancasters. Two nights later another all-Lancaster force of 350 aircraft took off for the first major raid on Leipzig in eastern Germany. The weather conditions were appalling, and the results were inconclusive. For the second time during the month a force of over five hundred aircraft set out for Kassel in central Germany. The raid on the 22/23rd began with a degree of overshooting by the H2s blind markers, but the visual markers were able to correct the error, and deliver their target indicators onto the city centre aiming point. The main force bombing was highly accurate and concentrated, and the hapless city and its inhabitants became engulfed in a firestorm. Its intensity was less than that experienced at Hamburg in July, but was nevertheless devastating in its effects, and more than 4,300 apartment blocks were reduced to rubble or shells. Almost six and a half thousand others sustained damage to some extent, and thus 63% of the city's entire living accommodation was rendered uninhabitable in just one night. The death toll almost certainly

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exceeded six thousand people, and bodies were still being recovered from the ruins many months later. The defenders fought back to claim forty-three bombers, and although the 428 Squadron contingent returned home, some were displaying the signs of combat, and two contained dead and wounded crewmen. LK908 survived an engagement with a night fighter, in which the rear gunner was killed and the mid-upper gunner was wounded, and the Halifax may also have been hit by flak. Sgt Sykes landed the aircraft safely, but it was declared a write-off. F/O Ford and his crew had a similar experience, and their rear gunner was also killed and the mid-upper gunner wounded. This concluded the month's operations, which had again seen the Ghosts badly mauled, and November was to bring a new intensity as Harris turned his gaze once more upon Berlin. 428 Squadron would begin the new month with a new commanding officer in the form of W/C French. W/C Suggitt was posted to 617 Squadron on the 30th to assume the role of Flight commander, reverting to the rank of Squadron Leader to do so. Sadly, his Lancaster would strike high ground a few minutes after departing Ford for Woodhall Spa in poor weather conditions on the morning of the 13th of February 1944. Seven occupants died at the scene, including F/S Pulford, who had been Gibson's flight engineer on the Dams raid, and S/L Lloyd the 617 Squadron Intelligence Officer. Bill Suggitt alone survived the crash, but succumbed to his injuries two days later without regaining consciousness.

The first half of November would be less frenetic than the start of October, and only one major operation was mounted against a target in Germany. Düsseldorf provided the main fare on the 3/4th, for which almost six hundred aircraft took off, and central and southern districts suffered extensive damage. 428 Squadron took part, and all of its aircraft returned to home airspace. LK954 had been damaged by gunfire, presumably from an enemy night fighter, although this was not always the case, and crashed in Lincolnshire killing F/O Eaton and the other seven men on board. Earlier in the day Harris had sent a memo to Churchill, in which he asserted that, "we can wreck Berlin from end to end if the USAAF will come in on it. It will cost between us 400-500 aircraft. It will cost Germany the war." The Americans, of course, were committed to victory by land invasion, and there was never the slightest chance of enlisting their support for an all-out air assault on Germany's Capital. Undaunted as always, Harris would go it alone, and put preparations in hand for the campaign's resumption later in the month. On the 6th the three former 6 Group Wellington squadrons, 420, 424 and 425 returned to Bomber Command after their tour of duty in Tunisia, and they all began converting to Halifaxes, although it would be mid February before they attained operational status. During the lull in operations over Germany over three hundred Lancasters of 5 and 8 Groups attempted to rectify September's failure at the Modane railway yards in southern France. The operation took place on the night of the 10/11th, and enough of the bombing was sufficiently accurate to cause serious damage. On the following night an attempt to further disrupt the railway link with Italy failed, when a predominantly Halifax force missed the marshalling yards at Cannes, but at least there were no 428 Squadron casualties.

Harris rejoined the long and rocky road to Berlin on the night of the 18/19th, for which over four hundred Pathfinder and main force Lancasters were detailed. A further four hundred Halifax, Stirling and Lancaster crews drawn from 3, 4, 6 and 8 Groups were briefed to carry out a diversionary raid on the twin cities of Mannheim and Ludwigshafen in an attempt to

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split the defences, or at least to confuse the enemy night fighter controller. The crews found Berlin to be completely cloud-covered, and it was impossible to assess the results of the raid. It had, in fact, been only modestly effective, lacking any concentration, and only four of the 173 buildings completely destroyed were industrial. Nine Lancasters failed to return, possibly because of the diversion, from which a further twenty-three aircraft were missing. There were no losses among the 428 Squadron contingent, but four returned home with flak damage. A Halifax and Stirling attack on Leverkusen on the 19/20th scattered bombs all around the region, and only one bomb found its way into the target city. On the way home over Germany LK956 was hit by flak, and eventually had to be abandoned over Holland. F/S Shepherd and three of his crew were rounded up by the enemy, but three others managed to evade capture. LK950, meanwhile, struggled on towards England, having also been hit by flak while over the target. Once over Kent F/S Hawthorne and his crew took to their parachutes, and six of them arrived safely on the ground. The fate of the mid-upper gunner is unclear, and he has no known grave.

Round two of the Berlin offensive came on the 22/23rd, when 764 aircraft took off for the Capital, among them KB700, the Ruhr Express, on its maiden operation. Not only was it carrying the crew of F/S Floren, who hailed from Weyburn, Seskatchewan, but also a reporter and a photographer to record the first bombing operation by a Canadian-built Lancaster. Sadly, engine problems began to develop during the outward flight, and although some bombs were jettisoned, height could not be maintained, and the sortie was abandoned some sixty miles short of Berlin. The remaining crews were again denied a sight of the massive urban sprawl below, as 10/10ths cloud continued to lie across the northern half of Germany. They were only able to speculate about the accuracy of the attack at debriefing, although the consensus was that the marking and bombing had found the mark. What they did not know, was that they had inflicted upon Berlin its most devastating assault of the war, which left three thousand houses in ruins along with twenty three industrial premises in an area stretching from the city centre westwards. A number of firestorm areas were reported, and a pall of smoke rose over the city to a height of more than eighteen thousand feet. Around two thousand Berliners lost their lives, while a further 170,000 were rendered homeless in return for bomber casualties amounting to twenty-six aircraft. 428 Squadron posted missing the crew of Sgt Jacob, who were all killed when LK906 crashed in Germany.

On the following night Harris dispatched an all-Lancaster main force, and guided by the glow of fires still burning beneath the clouds the crews were able to deliver another devastating blow, which destroyed over two thousand more houses, and a handful of industrial premises. The death toll on the ground was around fifteen hundred people, while twenty Lancasters failed to return. The posting missing of crews was a sad but routine affair, and a necessary adjunct of warfare. Within hours of a crew's loss all personal belongings would have been removed from billets, and telegrams sent to relatives, these to be followed by a letter from the commanding officer. He would describe the missing son or husband as a popular member of the squadron who would be missed, and offer the crumb of comfort that he may be safe in enemy hands. There was nothing more to be done. During a three-night break for the Lancaster crews the Halifax brigade carried out a scattered raid on Frankfurt. LK969 was attacked and shot down by a night fighter in the target area, and S/L Beggs and five of his

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crew survived to be taken into captivity. An all-Lancaster heavy force was prepared on the night of the 26/27th for the fourth trip to Berlin since the campaign's resumption. Over four hundred aircraft were detailed, and they set a course over northern France accompanied by a Halifax diversionary force, which peeled off for Stuttgart when Frankfurt was reached. The skies over Berlin were clear as the Lancasters approached from the south, but the Pathfinders overshot the city centre, and marked an area well to the north-west. Fortunately for the outcome of the raid, industrial districts lay below, and thirty-eight war industry factories were completely destroyed. The bomber stream became scattered as it withdrew from the target area, and night fighters were able to pick up individual Lancasters during the return flight. Twenty-eight failed to return home, while a further fourteen were written off in crashes in England. On return to the Middleton-St-George circuit 428 Squadron's JN966 collided with ED417, a Lancaster from 103 Squadron based at Elsham Wolds. Both aircraft plunged to the ground, and there were no survivors from the crew of F/S Buck, while just one member of the Lancaster crew came through alive.

December began as November had ended, with an all-Lancaster main force rejoining the hazardous road to Berlin on the night of the 2/3rd. The 440 strong heavy contingent was supported by eighteen Pathfinder Mosquitos to lay route markers. Wrongly forecast winds led to a scattering of the bomber stream during the outward flight, and made it difficult for the Pathfinders to pinpoint the planned aiming point. As a result the marking spread over the southern half of the city, and much of the bombing hit the suburbs or fell into open country, although some useful damage was inflicted on industrial areas in western and eastern districts. It was a bad night for the Command, the forty missing aircraft making it the worst against Berlin since the opening two raids of the offensive back in August. On the following night over five hundred Lancasters and Halifaxes took off for Leipzig, a city last attacked ineffectively in foul weather conditions back in October. The force headed directly for Berlin to mislead the night fighter controller, and then, as it turned towards Leipzig, a Mosquito feint continued on to Berlin to maintain the deception. The ploy had the desired effect, and the main operation was relatively unmolested by night fighters. Accurate marking and bombing led to the most destructive attack of the war on this eastern city, in which housing and industry suffered alike. Had the bomber stream not strayed into the Frankfurt defence zone on the way home the losses would have been light, but in the event, twenty-four aircraft failed to return, although none from 428 Squadron. There were no major operations thereafter until mid month, and it was left to the Mosquitos of 8 Group's Light Night Striking Force to maintain the pressure on Germany by nightly raiding one or more targets in the Ruhr.

Operations resumed on the night of the 16/17th, when Berlin was selected as the objective for an all-Lancaster heavy force numbering over 480 aircraft. The enemy night fighter controller was becoming accustomed to the direct route across Holland adopted by the bombers, and was able to start infiltrating his aircraft into the stream at the Dutch coast. Combats took place all the way to the target area, and the majority of the twenty-five losses occurred during the outward flight. Complete cloud cover over Berlin necessitated the use of skymarking, but much of the bombing still fell within the city, although without achieving any significant degree of concentration. The bombers returned via a northerly route over Denmark, and thereby avoided a further confrontation with the enemy, but many crews, particularly those

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from 1, 6 and 8 Groups, still faced their sternest test of the night. By the time they arrived in home airspace their stations were shrouded in a blanket of impenetrable low cloud, and few, if any, had sufficient reserves of fuel to divert to other areas. The minutes between midnight and 02.00 witnessed the frantic search by exhausted crews for somewhere to land, and many aircraft came to grief as they stumbled around in the murk. Some flew into the ground, while others collided with obstacles or other aircraft. A few crews opted to take to their parachutes as their fuel ran out, and they were generally the fortunate ones. Twenty-nine Lancasters were lost in these cruellest of circumstances, and around 150 airmen lost their lives when so close to home and safety. The Command remained on the ground for the following three nights.

In the late afternoon of the 20th almost 650 Lancasters and Halifaxes took off for Frankfurt, accompanied by a small force of 1 and 8 Group Lancasters and Mosquitos bound for Mannheim as a diversion. The enemy night fighter controller was again able to plot the bomber stream's progress, and many combats took place before the target was reached. Unexpected cloud hampered the Pathfinders' attempts to mark, and decoy fires and markers on the ground lured some of the bombing away from the city. The creep-back from this fell within Frankfurt, however, and over four hundred houses were destroyed, while almost two thousand other buildings in the city and neighbouring towns sustained serious damage. It was a bad night for the bombers, though, and forty-one failed to return home, twenty-seven of them Halifaxes, which represented a 10.5% loss rate for the type. 428 Squadron was represented among the missing by EB252 and LK928, the latter crashing in Germany killing all but the pilot, F/S Keighan. The precise location of the former's demise is uncertain, but again only one member of the crew, captained by P/O Armour, survived to be captured. Three nights later over 360 Lancasters provided the majority of the effort for yet another assault on Berlin, when a Mosquito feint at Leipzig was partially successful in delaying the arrival of the night fighters. Technical problems with their H2s equipment prevented the Pathfinders from taking advantage, and the marking was scattered. Most of the bombing fell into the south-eastern corner of the city, where almost three hundred buildings were destroyed, while sixteen Lancasters failed to return home.

The last but one wartime Christmas came and went in relative peace, but business as usual resumed on the 29/30th, when a force of seven hundred aircraft was made ready for the final operation of the year to Berlin. It was also to be the first of three trips to the Capital in the space of five nights spanning the turn of the year, a concentration of effort, which would bear down most heavily on the Lancaster crews. Taking off either side of 17.00 hours the bombers took a different route on this night, passing south of the Ruhr and approaching Leipzig before swinging towards Berlin. Mosquito diversions over the Ruhr, Magdeburg and Leipzig helped to keep the night fighter controller guessing, and few night fighters made it to the target area. Again the main weight of bombs fell into the southern and south-eastern districts, while some was wasted beyond the eastern city limits. Almost four hundred buildings were destroyed in return for the loss of twenty aircraft. 428 Squadron sustained no losses on this night, but it had not been a happy year for the Ghosts. It had been a tough year all round, of course, but generally speaking, a successful one, during which Bomber Command had developed into a weapon of awesome power. When this might was directed accurately, it could reduce cities to ruins. Standing in its way, however, were two powerful enemies, the weather and the

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Luftwaffe night fighter force, and during the first quarter of 1944, they would combine to test the bomber crews to the absolute limit.

1944

As the New Year dawned the toll of repeated operations to Berlin, eight since the resumption of the campaign, began to tell on the crews, particularly those of the Lancaster squadrons. They had been involved in every one, while the Halifaxes had been used sparingly, and the Stirlings, after a period of sustained heavy losses, had been withdrawn from operations over Germany altogether following the highly successful raid on the Capital on the 22/23rd of November. The effect of the campaign was also being felt by the inhabitants of Berlin, who had witnessed the destruction of 25% of their city's living accommodation, and seen evidence of the mounting death toll. There is little doubt, that they and the crews of Bomber Command shared a common wish for the New Year, that Berlin would cease to be the main focus of attention. In any event, Harris's belief that he could break the spirit of a people who were Berliners first and Germans second was ill founded. They were a hardy breed, and just like their counterparts in London during the blitz of 1940, they bore their trials with fortitude and humour, and got on with the business of daily life as best they could. The bombing served only to strengthen their resolve to withstand whatever Bomber Command could throw at them, and they joined together in a common bond of unity. During this, their "winter of discontent", they paraded banners through the shattered streets proclaiming, "you may break our walls but not our hearts". They took solace in the words of the most popular song of the day, Nach jedem Dezember kommt immer ein Mai, After every December comes always a May, a sentiment which hinted at a change of fortunes with the onset of spring. As events were to prove, this was precisely how long both beleaguered camps would have to wait before their wishes were fulfilled.

Before New Year's Day was done, the first Lancasters were taking off, and by the time that the 2nd of January was an hour old over four hundred of them were heading for the Capital via an almost direct route over Holland. Not all reached their objective, twenty-nine turning back for a variety of reasons, while around sixteen others fell victim to night fighters and flak. The remainder found the city covered by cloud, and the skymarking soon deteriorated in the face of a strong wind. The bombing was spread over seventeen miles from wooded country in the south-west to districts in the east, but nowhere was significant damage inflicted. The failure was compounded by the loss of twenty-eight aircraft, a goodly number of them carrying highly experienced Pathfinder crews. Many of the crews who collapsed wearily into bed at breakfast time on the 2nd found themselves back in the briefing room later in the day, incredulous and angry at the prospect of a back-to-back trip to the "Big City", and the third in five nights. No diversionary measures were planned for this operation, and the route was again straight in over Holland, with a dogleg south-east of Bremen to bring the bomber stream to a position north-west of Berlin for the final approach. 362 Lancasters took off, along with nine Halifaxes and a dozen Mosquitos, but the strain and weakening morale manifested itself as crew after crew turned back with problems of some kind. The force was depleted by sixty aircraft in this way, and while "boomerangs" were a fact of life for very genuine reasons, some of those aborting their sorties on this night would almost certainly have pressed on under different

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circumstances. The enemy night fighters failed to make contact with the bomber stream until Berlin was reached, but there they took a heavy toll. Bombs were again scattered over all parts of the city, and damage was only marginally greater than twenty-four hours earlier, amounting to around eighty houses destroyed. The cost of this failure was twenty-seven Lancasters, ten of them Pathfinders, 156 Squadron alone losing five to add to the four it had posted missing on the previous night, and in less than two weeks time it would lose five more raiding Brunswick. Such losses were beginning to bleed the Pathfinders dry of quality crews, and sideways postings between the squadrons became common to maintain a leavening of experience. 428 Squadron's first operation of the New Year was a mining trip to Brest in company with 419 Squadron. The surviving Berlin crews had two nights off before their next briefing was called on the afternoon of the 5th. The target was Stettin, at the eastern end of Germany's Baltic coast, for which 350 Pathfinder and main force Lancasters were accompanied by ten Pathfinder Halifaxes from 35 Squadron. It was another very late take-off, and as the bomber stream headed for the Baltic, a mosquito diversion at Berlin played its part in keeping the main operation largely free of night fighters. Over five hundred houses were completely destroyed, along with twenty industrial premises, while almost twelve hundred other buildings were seriously damaged, and eight ships were sunk in the port. On the debit side sixteen aircraft failed to return home.

There now followed a welcome eight-night break from operations, which allowed the hard-pressed squadrons an opportunity to recover from the four long-range trips in the space of eight nights. 428 and 419 Squadrons sent twelve aircraft between them mining in French waters on the night of the 6/7th, and then they too began a lengthy spell away from operations. When the Lancaster crews gathered for briefings on the 14th, there must have been a sense of relief as the curtains were drawn back from the wall maps, revealing that Brunswick and not Berlin was the target for the night. Situated about fifty miles beyond Hanover, the city that had proved to be a difficult and costly nut to crack in a four raid series during the autumn, Brunswick had not hosted a major operation before. 498 aircraft, all but two of them Lancasters, took off either side of 17.00 hours, and headed for a landfall at the German coast near Bremen. There the bomber stream was met by a strong force of enemy night fighters, which were able to remain in contact all the way to the target and back as far as the Dutch coast. They scored steadily throughout, and by the time the survivors reached home airspace after a dismally disappointing raid, which had mostly afflicted outlying communities, thirty-eight of their number had been brought down. The Pathfinders had again sustained heavy casualties, this time amounting to eleven aircraft.

Another five-night lull prepared the crews for the next operation, a maximum effort to Berlin on the 20/21st, for which 769 aircraft took off. After almost two weeks away from the operational scene 428 Squadron returned to action on this night, when the bomber stream crossed the German coast at the narrow neck of land south of the Danish border and opposite Kiel, where a small Mosquito feint failed to impress the night fighter controller. Almost immediately night fighters made contact and began their deadly work, as the bomber stream pressed on for a north-westerly approach to the target. Berlin was completely cloud covered, and it was impossible to make an assessment of the raid from the air. In fact, most of the bombs had fallen in an eight-mile swathe from north to south across the city's hitherto less

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severely damaged eastern districts, and there was much damage to housing, industry and railway installations. It was another night of heavy losses, however, and twenty-two of the missing thirty-five aircraft were Halifaxes. 428 Squadron's LK739 became a victim of flak, but F/S Reain and his crew had time to abandon the stricken Halifax before its final plunge to earth, and all arrived safely on the ground, all but the mid-upper gunner to evade capture. S/L Mcleish's aircraft landed with many holes in it as evidence of being fired upon by another Halifax, while JN968 was attacked by a BF110 and was hit by flak.

Like the recently raided Brunswick, Magdeburg had never been attacked in numbers before, and on this night of the 21/22nd, it would face the remains of a force of 648 aircraft that had departed their stations either side of 20.00 hours. The enemy night fighter controller plotted the progress of the bomber stream across the North Sea, and had to distinguish between the main raid and a small 5 and 8 Group diversion to Berlin. The first contact was made before the German coast was reached, and a running battle ensued from there to the target, which was reached ahead of time by some aircraft through stronger than forecast winds. Anxious to get away from the target area as quickly as possible, some crews bombed before the Pathfinder markers went down, and the resulting fires combined with decoy markers to draw off a proportion of the main force attack. The Pathfinders were not able to recover the situation, and the bombing lacked accuracy and concentration, falling predominantly outside of the city. A massive fifty-seven aircraft failed to return, the majority of them victims of night fighters, and this represented a new record casualty figure. The Halifax squadrons once more sustained the heavier losses, amounting to thirty-five aircraft. 428 Squadron's DK237 was shot down by a night fighter over the target, but F/S Terry and his entire crew escaped by parachute to fall into enemy hands, although the mid-upper gunner was seriously wounded, and died in a German hospital on the 24th.

The squadrons were given a five-night rest to lick their wounds before the next round of operations began, and this was to be a three-raid assault on the Capital in the unprecedented space of just four nights. An all-Lancaster heavy force of 515 aircraft took off either side of 18.00 hours on the 27th, and flew a south-easterly course across northern Holland and into Germany, before turning north-east to a point west of Berlin. Elaborate diversionary operations pinned down a proportion of the night fighter force, and activity around the bomber stream was less intense than of late. The city was cloud covered, and a strong tail wind drove the markers across the city along the line of approach. Bombs fell in many parts of Berlin, although more in the southern half, but dozens of outlying communities were also afflicted. The operation was moderately successful, if expensive, with thirty-three Lancasters falling victim to the defences, most of them to night fighters arriving on the scene as the raid was in progress. Many of the surviving crews were back at briefing later in the day to learn that Berlin was again to be their destination that night. The inclusion of Halifaxes allowed a force of 677 aircraft to take off around midnight on the 28/29th, and they were routed over Denmark to approach the target from the north-west. Mosquitos bombed Berlin earlier in the evening, in the hope that this would persuade the night fighter controller that the main force was heading elsewhere. Other extensive diversionary operations were mounted, and although the outward flight was relatively free of night fighter encounters, a hot reception awaited the bombers over the target. Single and twin engine fighters accounted for twenty-seven aircraft here, but

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despite this, the marking and bombing was accurate and concentrated, and much damage was caused within the southern half of the city. Around 180,000 people were rendered homeless on this night, and many public and administrative buildings were damaged in south-central districts. The bomber casualties had reached forty-six by the time the survivors landed. 428 Squadron had three Halifaxes return early, but the remainder all made it home without major incident.

After a night's rest 534 aircraft set out again for the Capital, arriving over the city shortly after 20.00 hours. It was a predominantly Lancaster force, but eighty-two of the new and much improved Hercules powered Mk III Halifaxes also took part. The night fighters failed to meet the bomber stream over the North Sea, and only made contact deep inside German airspace, but from then until well into the return flight south of Brunswick and Hanover they took a heavy toll of bombers, eventually achieving a score of thirty-three, all but one of them Lancasters. On the credit side, Berlin suffered a bruising raid, in which large areas of the centre and south-western quarter were engulfed in flames, and at least a thousand people lost their lives. There were to be no major operations for the first two weeks of February, as the moon period and inhospitable weather kept most squadrons on the ground. The series of raids on Berlin at the end of January had undoubtedly hurt the city grievously, while not achieving the level of destruction of the November raids, but nowhere were there signs of imminent collapse. Berlin was no Hamburg with densely populated, confined housing areas and narrow streets in its old centre. It was a modern city of concrete and steel with wide thoroughfares and open spaces to act as natural firebreaks. Each new swathe of destruction created more firebreaks and applied the law of diminishing returns. Ultimately, Berlin was just too big, too incombustible and too far, and this at a time when the Luftwaffe was a much more efficient and lethal adversary than in pre-Window times. As events were to prove, this was the last concerted effort of the campaign, and although two further large-scale operations would take place, they would be in isolation and six weeks apart.

As it happened, the first of these would be the very next operation to confront the crews after their two-week stand-down. In the meantime 428 Squadron took part in a number of mining operations either alone or in company with other units. On the 2/3rd it was Kiel Bay with 419 and 433 Squadrons, and the following night La Rochelle with 419 Squadron. On the 5/6th elements of the two Middleton-St-George residents went to Oslo Fjord, and P/O Curley lost two engines on the way home, but landed safely. On the 11/12th the Ghosts operated alone, when sending eight aircraft to mine the waters around Brest, and all of these operations were undertaken without loss. There was an early briefing on every main force and Pathfinder station on the 15th, as preparations were put in hand for what would be the penultimate raid of the war by RAF heavy bombers on Berlin. It was to be a mighty effort, involving the largest non-1,000 force to date of 891 aircraft, and it would be the first time that over five hundred Lancasters and three hundred Halifaxes had operated to a single target. Among them would be a contingent from 420 and 424 Squadrons on their maiden operation since rejoining the Command back in November on their return from Tunisia. Together with the extensive diversionary operations, which included Mosquito attacks on enemy night fighter airfields in Holland, mining in Kiel Bay and a small 8 Group Lancaster raid on Frankfurt-an-Oder to the east of Berlin, more than a thousand aircraft were to be in action. The main operation began

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with a few departures before 17.00, but the vast bulk of the giant armada got away between 17.00 and 18.00, swinging north over Denmark, before setting an almost southerly course to the target. The night fighter controller observed the progress of the bomber stream, but held his response back until it crossed Denmark's Baltic coast a little north of Flensburg. The now familiar running battle ensued all the way to the target, and around twenty aircraft in the rear half of the stream were brought down. Berlin was, therefore, spared these bomb loads, and those of the seventy-five early returns. Even so, almost eight hundred aircraft remained, and they carried in their bomb bays a record 2,640 tons of bombs. Much of this was deposited squarely into the central and south-western districts of the city, causing almost twelve hundred medium and large fires and destroying a thousand houses and hundreds of temporary wooden barracks. Many important war industry factories were also hit, but as happened on all of the Berlin operations, scores of outlying communities found themselves in the firing line, and many bombs were wasted in this way. The bombers withdrew to the south and headed for northern Holland, making their way to the North Sea via the Ijsselmeer, but forty-three aircraft would not be coming home. 428 Squadron negotiated this operation without loss, but had three aircraft return early, all with leaking overload tanks.

The survivors were allowed three nights off before the next operation, which was to Leipzig on the 19/20th. This was the night on which 425 Squadron launched its new operational career on Halifaxes. It was to be a late take-off, either side of midnight, and extensive diversionary operations were again laid on. The enemy night fighter controller was not deceived, and reserved most of his strength to meet the main raid as it crossed the Dutch coast. The two forces remained in contact all the way into eastern Germany, where some aircraft arrived early through stronger than forecast winds. They were forced to orbit in the target area until the Pathfinder markers went down, and around twenty of them fell victim to the local flak batteries, while four others were lost through collisions. The attack was inconclusive in the face of complete cloud cover and skymarking, but what was not in question was the scale of the mauling inflicted on the Command. When all of the returning aircraft had been accounted for, there was a massive shortfall of seventy-eight, by far the heaviest casualty rate to date. The Halifax loss rate was over 13% of those dispatched, and Harris immediately withdrew the Mk II and V variants from future operations over Germany. JD271 was the only 428 Squadron failure to return, after it crashed into the Ijsselmeer and took with it the crew of F/O Woolverton. F/O Blake's Halifax was hit by flak, and sustained damage to the fuselage, both turrets and the undercarriage, before an FW190 knocked out the oxygen system, but a safe landing was made at base. Despite the horrendous losses, and the withdrawal of the older Halifaxes, almost six hundred aircraft were made ready on the following night for the first of three heavy raids over a three-week period on Stuttgart. 428 Squadron would have no further part to play in operations over Germany until its Halifaxes were replaced by Lancasters in the summer, and consequently its rate of losses fell dramatically. Departure for the Stuttgart force was shortly before midnight, and for once, the night fighter controller was deceived by the diversionary measures, thus leaving the bomber stream largely unmolested during its time over enemy territory. Despite cloud cover and scattered bombing much damage was caused in the city's central districts, and also to areas in the north-west and north-east. A modest nine aircraft failed to return. On the following night 428 Squadron dispatched ten aircraft to La Rochelle to lay mines, and all returned safely.

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A new tactic was introduced for the next two operations in an attempt to reduce the prohibitive losses of recent weeks. It was decided to split the bomber force into two distinct waves, separating them by two hours in the hope that the enemy night fighters would be caught on the ground refuelling and re-arming as the second wave passed through. The system was tried first during an operation to the ball bearing town of Schweinfurt on the night of the 24/25th, the first wave of 392 aircraft taking off between 18.00 and 19.00 hours, and the second wave of 342 aircraft departing their stations between 20.00 and 21.00 hours. Both phases of the attack suffered from undershooting, and the operation was a failure in that respect. However, the second wave lost 50% fewer aircraft than the first in an overall casualty figure of thirty-three, and this suggested some merit to the system. 428 and 419 Squadrons sent a total of twenty-one aircraft mining in Kiel Bay on this night, and all of the Ghosts returned without major incident. The experiment continued on the night of the 25/26th at Augsburg, the beautiful and historic city in southern Germany, which had been the scene of the epic daylight raid by 44 and 97 Squadron Lancasters in April 1942, for which the since killed-in-action W/C Nettleton had been awarded the Victoria Cross. It was Augsburg's misfortune to be the victim of one of those relatively rare occasions, when all facets of the operational plan came together in perfect harmony. The unusually concentrated marking and bombing, with scarcely any creep-back, devastated the old centre of the city, obliterating forever centuries of cultural history. Over 2,900 houses were destroyed, five thousand others were damaged to some extent, and up to ninety thousand people were rendered homeless. During the second phase of the attack, however, some of the bombing did eventually spread into the industrial areas in the north and east, and damage was caused to at least one war industry factory. Twenty-one aircraft failed to return, thus confirming the efficacy of the two-wave system. 428 Squadron was on duty again on this night laying mines in Kiel Bay.

The dawning of March brought the final month of the long and increasingly bitter winter campaign. Thereafter would come a new offensive to prepare the way for the invasion of Fortress Europe. Matters, though, were already well in hand in this regard, and the first salvoes of Bomber Command's contribution, the Transportation Plan, would be fired before the new month was a week old. In the meantime, the second raid of the series on Stuttgart was mounted on the 1/2nd by a force of 557 aircraft, made up predominantly of Lancasters, with 129 Mk III Halifaxes in support. Dense cloud on the route to the target prevented night fighters from making contact with the bomber stream, but also hampered the Pathfinders in their marking. No assessment of the raid by the crews was possible, but it had been a successful attack, which left further extensive damage in central, western and northern districts where housing was the main victim, although a number of important war industry factories were also hit. The operation was concluded for the remarkably low loss of just four aircraft. On the following night more than a hundred 4 and 6 Group Halifaxes successfully bombed the SNCA aircraft factory at Meulan-les-Mureaux, and this was 428 Squadron's first bombing operation since Leipzig. On the 3/4th the Ghosts joined forces with 419 Squadron to mine the Gironde Estuary, and the two units were in action again twenty-four hours later over the waters around Brest. Most of the main force Lancaster squadrons remained on the ground for two weeks after Stuttgart, and it was during this period that Halifaxes of 4 and 6 Groups, particularly the restricted Mk II and Vs, took the main role in opening the Transportation Plan.

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This called for the systematic dismantling by bombing of the French and Belgian railway networks ahead of the invasion, to prevent their use by the Germans to bring forces to the front. Halifaxes opened the proceedings at Trappes marshalling yards on the 6/7th, after the marking had been carried out by Oboe Mosquitos. A successful operation left track, rolling stock and installations severely damaged, and similar success was gained at Le Mans railway yards on the following night. Both operations were concluded without loss. A second attack by 4 and 6 Groups on the Le Mans yards took place on the 13/14th, and this time fifteen locomotives and eight hundred wagons were destroyed, while collateral damage resulted to two nearby factories. 428 Squadron took part in all three of these operations, and also went mining on the 12/13th, sustaining no casualties.

The Command returned to the fray in numbers on the 15/16th, when 863 aircraft, the second largest non-1,000 force to date, took off to return to Stuttgart. The route, which took the bomber stream along the length of France almost to the Swiss border, delayed the inevitable contact with night fighters, but they caught up shortly before the target was reached, and began to take a heavy toll. Strong winds played a part in a disappointing marking performance, and although some bombs hit central districts, the majority fell short and into open country. Thirty-seven aircraft were missing from the operation. 428 Squadron took part in a Halifax and Stirling raid on the railway yards at Amiens on this night, and returned there twenty-four hours later for a second crack. Another massive force, this time of 846 aircraft, set out during the early evening of the 18th for the first of two raids in four nights on Frankfurt. Part of the enemy night fighter response was drawn to the north to face a mining diversion, but the remainder made contact with the bomber stream as it bore down on the target. Accurate Pathfinder marking preceded a concentrated attack, which fell mainly into central, western and eastern districts, destroying or seriously damaging over six thousand buildings. Although housing accounted for most of this total, industrial, commercial and public buildings also figured prominently, and the loss of twenty-two aircraft was a relatively modest price to pay for the scale of the success. Thirty-nine aircraft from 428, 419, 431 and 434 Squadrons mined the waters around Heligoland on this night. Four nights later over eight hundred aircraft again took off for Frankfurt, and delivered an attack that was even more devastating than the first, and although all parts of the city were afflicted, the western districts received the greatest concentration of bombs. Half of the city was left without water, gas and electricity for an extended period, and the old Frankfurt, which had developed from the Middle Ages, was obliterated. Despite the failure of the bulk of the night fighter force to make contact, thirty-three aircraft failed to return, and one must assume that the flak batteries enjoyed a successful night. Meanwhile, seventy-four 6 Group aircraft carried out a mining operation in Kiel Bay, and 428 Squadron again operated without loss. The Transportation Plan continued on the 23/24th with an attack on the railway yards at Laon, from where four 428 Squadron crews returned without bombing, after failing to identify the target indicators.

The time had now arrived for Harris to launch the final assault of the campaign on Berlin. It would be the nineteenth since he began back in August, and the sixteenth since the resumption in November. For some 5 and 8 Group squadrons, which had participated in the diversion to Berlin on the night of the Magdeburg raid, it would be the seventeenth since then. It would also be the final raid of the war by RAF heavy bombers on the Capital, which would then be

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left to the Mosquitos of 8 Group's Light Night Striking Force to harass right up to the moment that Russian troops arrived in the suburbs. 811 crews lined up for take-off on the evening of the 24th, the aircraft departing their respective stations either side of 19.00 hours, and taking a wide swing over Denmark before crossing Germany's Baltic coast. The main feature of the outward flight was a wind of unprecedented strength from the north, which scattered the bomber stream and drove aircraft continually south of their intended track. The windfinder system, whereby selected crews assessed the wind strength and direction to transmit to Group HQs for re-broadcast, was unable to cope with the situation. The loss of cohesion denied the attack any meaningful chance of concentration, and as so frequently happened at Berlin, many bomb loads were wasted on over a hundred outlying communities. Sufficient housing was destroyed to leave twenty thousand people homeless, but industry escaped reasonably lightly. There had been little night fighter activity before the target was reached, but fourteen bombers were shot down by fighters in the Berlin defence zone. The bomber stream became even more dispersed on the return flight, and instead of passing south of Hanover and north of the Ruhr, many aircraft were driven by the wind into the Leipzig area and over the Ruhr itself. This provided the predicted flak batteries with their biggest bag of the war, and an estimated two-thirds of the seventy-two missing bombers were credited to them. It had been an exhausting campaign against Berlin for all concerned, but some squadrons had suffered disproportionately heavy casualties. The railway campaign continued at Aulnoye on the 25/26th, but the Pathfinders were unable to mark accurately and most of the bombing fell wide of the mark. 428 Squadron took part, and, like all the other participating units, came through unscathed.

The Berlin offensive may now be over, but the winter campaign still had a week to run, and two further major operations for the crews to negotiate. Essen provided the target for a force of seven hundred aircraft on the 26/27th, and the sudden switch to the Ruhr probably caught the defenders by surprise. Within range of Oboe, the decisive factor in the Ruhr offensive a year earlier, the city wilted under another highly effective attack, which destroyed over seventeen hundred houses, and seriously damaged almost fifty industrial buildings. A modest nine aircraft failed to return, but a simultaneous operation against the railway yards at Courtrai, which included a 428 Squadron contingent, was carried out without loss. 428 Squadron joined other 4 and 6 Group Halifaxes to attack the railway yards at Vaires near Paris in excellent bombing conditions on the 29/30th. Two ammunition trains were blown up in the process, killing over twelve hundred German soldiers. The final operation of the winter offensive was to be against Nuremberg, a city, which thus far, had escaped the worst ravages of a Bomber Command assault. At briefings on the 30th crews were given a forecast of protective cloud at cruising altitude, but later, a 1409 Met Flight Mosquito crew reported that this was unlikely to materialize. Despite the warning the operation was given the green light, allowing 795 aircraft to take off in the late evening, and head towards the greatest disaster to afflict the Command during the entire war. A conference earlier in the day involving the Group commanders had decided upon a 5 Group inspired route, which would take the bomber stream in a long, straight leg from a point over Belgium to about fifty miles north of the target, from where the final run-in would commence. AVM Bennett, the brilliant Pathfinder AOC, was utterly and violently opposed to the plan and predicted a disaster, but he was overruled.

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It was not long before the crews began to note some unusual and alarming features in the conditions, which included uncharacteristically bright moonlight, combined with crystal clear visibility. This enabled them to observe the other aircraft in the stream, something to which they were rarely accustomed. The forecast cloud did, indeed, fail to appear, but formed instead beneath the bomber stream as a white backdrop, silhouetting the aircraft like flies on a tablecloth. If this were not enough, condensation trails began to form in the cold, clear air, further advertising the bombers' presence. The final insult was the reappearance of the jetstream winds, which had so adversely affected the Berlin raid a week earlier. On this night they blew from the south, breaking the cohesion of the bomber stream, and driving aircraft well to the north of their intended track. Again, the windfinders were unable to cope with the speed of the wind, and modified their findings before transmitting them back to HQ. Here, the figures were disbelieved, and were again modified before being sent back to the aircraft. The result was, that many crews, through either failing to detect the effects of the wind, or refusing to believe the evidence, wandered up to fifty miles north of track, and consequently, turned towards Nuremberg from a false position. Perhaps of greater significance, was the fact that the disputed route passed close to two night fighter-holding beacons, and this, together with the conditions, handed the bomber force on a plate to the waiting enemy. The carnage began over Charlerois in Belgium, and continued all the way to the target, the burning wreckage on the ground of RAF bombers sign-posting the way. These massive losses during the outward flight together with the fifty-two early returns dramatically reduced the numbers available to attack the city. Other absentees from the target were around 120 crews, most of whom had probably been unaware of their true position when turning towards Nuremberg. At the appointed time they found themselves over a built-up area, and on seeing a number of target indicators, they took this to be the target. It was, in fact, Schweinfurt, some fifty miles to the north-west, and it was only on their return, that the majority discovered their error. In the event, Schweinfurt escaped lightly, as did Nuremberg, but the surviving aircraft did at least face a considerably reduced level of opposition on the way home. When all the accounting had been done, an unbelievable ninety-five aircraft were found to be missing, while others were written off in crashes at home, or with battle damage too severe to repair. The Ghosts joined 419 and 434 Squadrons on this night to mine the waters around Heligoland.

That which now faced the crews was in marked contrast to what had been endured over the winter. The frequent deep penetration forays into Germany on dark, often dirty nights were to be replaced by mostly shorter-range hops to France and Belgium in improving weather conditions. An added bonus was that these targets, unlike Berlin, Frankfurt, Nuremberg, Schweinfurt, Augsburg, Leipzig and Stuttgart, would fall within the range of Oboe. The main fly in the ointment as far as the crews were concerned was a dictate from on high, which decreed that most such operations were worthy of counting as just one third of a sortie towards the completion of a tour. Until this flawed and ridiculous policy was rescinded, mutterings of discontent pervaded the bomber stations. The view from the top, that operations against French and Belgian targets would be a "piece of cake" would not be borne out, and they would require of the crews a greater commitment to accuracy, to avoid as far as possible friendly civilian casualties. Now that the entire Command was available to concentrate on the Transportation Plan, it would proceed apace, and despite the prohibitive losses of the winter, the bomber force was in remarkably fine fettle to face its new challenge. Harris was now in

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the enviable position of being able to achieve that which had eluded his predecessor, namely to attack multiple targets simultaneously with forces large enough to make an impact. He could assign targets to individual Groups, to Groups in tandem, or to the Command as a whole, as dictated by operational requirements, and whilst pre-invasion considerations dominated, Harris was never going to entirely shelve his favoured policy of city-busting.

April began with minor operations, and the new offensive did not get under way in earnest until the night of the 9/10th, when two operations were mounted against railway targets in France. 428 Squadron joined an overall force of 239 aircraft from 3, 4, 6 and 8 Groups to attack the Lille-Delivrance goods station to excellent effect, destroying in the process over two thousand items of rolling stock, and extensively damaging track and buildings. The success of the operation was marred only by the heavy casualties among French civilians in adjacent residential districts. Around five thousand houses were destroyed or damaged, and 456 people were killed, and it was a fact of life that bombing, until the advent of laser guidance, was indiscriminate and required saturation to cope with precision targets like railway yards in built-up areas. The night's other operation at the Villeneuve-St-Georges railway yards in Paris, conducted by elements from all the Groups, also resulted in civilian deaths, although on a much smaller scale. On the following night four railway yards were targeted in France and one in Belgium, and the Ghosts were assigned to the latter, at Ghent. Severe damage was inflicted upon the Merelbeke-Melle railway yards, but almost six hundred buildings were destroyed in adjacent districts and 428 Belgians were killed. On the 11/12th Harris sent over 350 Lancasters and Mosquitos from 1, 3, 5 and 8 Groups across the German frontier to attack Aachen. It was the town's worst night of the war, and left massive damage to buildings and communications, while killing over fifteen hundred people.

There were no main force operations during the following week, but 428 Squadron carried out mining sorties around Heligoland on the 12/13th, Le Havre and Cherbourg on the 13/14th and Kiel Bay on the 17/18th, and it was on the last-mentioned occasion that the squadron registered its first missing crew for two months. JN973 disappeared without trace, and took with it the crew of P/O Lillico. It was during this period, on the 14th, that Bomber Command officially became subject to the dictates of SHAEF for the pre and post-invasion campaigns. It would remain thus shackled until the Allied armies were sweeping towards the German frontier at the end of the summer. After the welcome rest operations resumed on the night of the 18/19th, when four railway yards were attacked. 6 Group concentrated on those at Noisy-le-Sec, where damage to the yards, locomotive sheds and workshops was extensive, and it would be long after the war before repairs were completed. Delayed action bombs made the area unsafe for a further week, but a through-line was established within days. It was another tragedy for the local population, however, and over 460 French civilians lost their lives as 750 houses were destroyed. 428 Squadron spent the night in company with elements of 419 and 434 Squadrons mining off Rostock and in Fakse and Kiel Bays. On the night of the 20/21st, while an all-Lancaster force was raiding Cologne to devastating effect, 428 Squadron took part in an attack on the railway yards at Lens. Bombing was accurate, and the engine sheds and carriage repair shops in particular sustained heavy damage. JP113 was badly damaged by a night fighter on the way home, and when a fire broke out three of the crew complied with the order to jump. Of these one is known to have fallen into enemy hands and another evaded

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capture. Eventually the fire was put out, and having reached Norfolk, F/L Ford crash-landed the Halifax at Attlebridge. All on board sustained injuries, and the rear gunner ultimately succumbed to his. Another of the squadron's aircraft also arrived back over England with problems. S/L McGugan and his crew had been mining in French waters in JP199. An engine fire developed during the flight home, and the Halifax ultimately crashed in Berkshire, killing the pilot and one other. On the 22/23rd almost six hundred aircraft took part in an area raid on Düsseldorf, which left extensive damage mostly in northern districts. Night fighters infiltrated the bomber stream, and twenty-nine bombers were shot down. Simultaneous operations were carried out by 5 Group at Brunswick and elements of 3, 4, 6 and 8 Groups against the railway yards at Laon. The latter was conducted in two waves and with great success with a 428 Squadron presence. On the following night 428, 419 and 434 Squadrons sent aircraft mining in the Baltic and the Kadet Channel. LW285 was attacked and damaged by a night fighter, and a course was set for Sweden. When the Halifax became uncontrollable it was abandoned by the crew, six of whom evaded capture. The pilot, P/O Blake, was not among them, and he has no known grave.

Karlsruhe was the main force target for an old-fashioned area attack on the 24/25th, while 5 Group, now referred to in 8 Group circles somewhat disparagingly as the "Independent Air Force", went to Munich. Over six hundred aircraft were involved in the main operation, on a night when cloud over the target and strong winds helped to push the marking and bombing away from the city centre and over open country, and only the northern districts sustained serious damage. 428, 419 and 434 Squadrons again went mining on this night around St Malo, Cherbourg and the Frisians. The night of the 26/27th was one of heavy activity involving three major operations at widely dispersed targets. Almost five hundred aircraft attacked Essen to good effect, while Halifaxes and Mosquitos of 4, 6 and 8 Groups continued the railway campaign with a successful assault on the yards at Villeneuve-St-Georges. 5 Group was again operating independently, and on this occasion failing to make an impression on Schweinfurt. 428 Squadron was present at the first mentioned, and all of its crews returned safely home. The following night saw 6 Group involved in three operations, one by 1, 3 and 6 Groups on the highly industrialized town of Friedrichshafen, another at Montzen in Belgium, where elements of 4 and 6 Groups attempted but failed to effectively dismantle the railway yards, and the third with a 428 Squadron presence against a similar target at Aulnoye. The Ghosts also sent eight crews to mine the waters around Cherbourg. Two nights later 428 and 434 Squadrons put together a force of eighteen aircraft for mining duties in the Frisians. The month ended for 6 Group with a raid on the railway yards at Somain on the night of the 30th. Much of the early bombing fell into open country after some inaccurate marking, but later arrivals caused some damage for the loss of just four Halifaxes. 428 Squadron was not involved, but contributed to a force of thirty Halifaxes mining off French ports.

May began with six small to medium-scale raids on the 1/2nd against railway installations and factories in France and Belgium, 6 Group assigned to the marshalling yards at St Ghislain, where a highly accurate attack was delivered. Mostly minor operations were carried out by the Command over the next six nights, the one exception being the operation by 1 and 5 Groups against a panzer training camp and motor transport depot at Mailly-le-Camp on the 3/4th. The raid was ultimately successful, but communications difficulties in the target area between the

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marker leader, Master Bomber and the main force element led to a delay in the opening of the attack, and night fighters took advantage of the situation to score heavily. Forty-two Lancasters failed to return, and controversy abounds to this day concerning who was to blame. It was on this night that 428 Squadron opened its May account with the mining of French ports in company with 433 Squadron, and the two units repeated the exercise on the 4/5th. Until becoming operational on Lancasters six weeks hence the Ghosts would spend their time almost exclusively engaged in mining operations, and it would prove to be an entirely loss-free period. It was at this time that coastal batteries were added to the growing list of targets to be attacked in preparation for the invasion. It was important to maintain the enemy belief that the main landings would take place in the Calais area, and consequently, almost every attack on a heavy gun position up to the eve of the landings took place over the Pas-de-Calais. It was not even necessary to hit them, although this was always the intention, as long as the impression was given, that they were important pre-invasion targets. A coastal battery at St Valery-en-Caux was the target for a 6 Group attack on the 7/8th, while the Ghosts were mining the waters around the Frisians. On the 8/9th a 6 Group element was assigned to the railway yards at Haine-St-Pierre, where half of the yards and the locomotive sheds sustained serious damage. 428 Squadron was not in action on this night, but returned to French waters twenty-four hours later, while other elements of the Command attacked seven coastal batteries in the Pas-de-Calais. W/C McLeish became the new commanding officer on the 9th, having previously served the squadron as a Flight commander.

It was back to railway targets at five locations on the 10/11th, when the 428 Squadron crews were allowed to dry their feet and join in the briefings for an attack on the railway yards at Ghent. Sadly, the bombing here killed almost fifty Belgian civilians, but there were no losses among the attacking force. Twenty-four hours later railway yards at Boulogne-sur-Mer were bombed by a 6 Group main force, which again included a 428 Squadron contingent. Here too the attack was not entirely accurate, and almost 130 French civilians died. The Ghosts returned to their gardening duties on the 12/13th, this time around the Frisians in company with the Tigers of 424 Squadron, while other elements of 6 Group carried out a raid on the railway yards at Louvain, which was being hit for the second night running. Unlike the previous night's 3 and 8 Group assault, this one was highly effective, although heavy casualties were caused in adjacent residential districts. The Ghosts were allowed to take advantage of the lull in operational activity that followed, although they did have to send ten crews mining on the 14/15th.

When heavy operations resumed on the 19/20th after a week of relative inactivity, most of the effort was directed at railway yards, although two coastal batteries and a radar station were also attacked. A year and one week after the last major assault on Duisburg Bomber Command returned to the Ruhr city on the 21/22nd. Over five hundred Lancasters from 1, 3, 5 and 8 Groups were accompanied by twenty-two Mosquitos, and despite cloud cover, Oboe allowed an accurate attack to be delivered. 350 buildings were completely destroyed, and many hundreds of others sustained serious damage. The Ruhr, however, remained fiercely protected, and in an echo of the past twenty-nine Lancasters failed to return. 428 and 433 Squadrons sent twenty-three gardeners out on this night to deliver their vegetables to the waters around Heligoland and the Frisians. On the 22/23rd Dortmund hosted its first heavy

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raid since the Ruhr campaign, and sustained heavy damage at the hands of 1, 3, 6 and 8 Group Lancasters. On the same night 6 Group Halifaxes attacked the railway yards at Le Mans to good effect, while also damaging a nearby aero-engine factory, and this time civilian casualties were avoided. 428 Squadron's effort on this night involved two Halifaxes mining the waters around St Malo, and on the following night it was four aircraft gardening at Le Havre and Cherbourg. On the 24/25th over four hundred aircraft from all but 5 Group were sent to Aachen to attack the railway yards at Aachen-west and Rothe Erde in the east. Both targets were hit, but as the operation was over Germany, the attack soon developed into an area assault, and much damage was inflicted upon the town and villages adjacent to the railway installations. Among the night's other operations was one by Halifaxes and Lancasters against four coastal batteries, 428 Squadron crews joining in at Trouville. Over eleven hundred sorties were launched by the Command on the 27/28th, the largest force attending to the military camp at Bourg-Leopold, which had escaped serious damage during an abandoned 5 Group assault two weeks earlier. 428 Squadron again went mining instead, this time sending twenty-one aircraft to the waters around Helogoland, St Malo and Brest. Two nights later three Ghosts carried out a similar operation off Dunkerque and the Dutch coast. On the last night of the month over two hundred aircraft from all but 5 Group carried out a two-wave attack on the railway yards at Trappes. The operation was successful, as was a small-scale effort involving 428 Squadron against a coastal jamming station at Mont Couple. Many crews returned to comment on the violence of the thunderstorms en-route.

The first week of June was dominated by preparations for the impending invasion, and was characterized by unsettled weather. While the rest of 6 Group sat the night out at home, ten Halifaxes of 428 Squadron maintained the pressure on enemy shipping by laying mines in the sealanes around Dunkerque, Flushing and Den Helder. Most of the 6 Group Halifax squadrons then joined the action on the night of the 2/3rd in an operation against a gun battery at Neufchatel, while 428 and 433 Squadrons continued with their horticultural activities along the French and Dutch coasts, a process which they repeated on the following night. The Group was out in force supporting the rest of the Command on D-Day Eve, the 5/6th, when over a thousand aircraft were aloft to attack ten coastal batteries ahead of the invasion force. More than five thousand tons of bombs were delivered onto the aiming points, a new record for a single night, and most of the effort was aimed at Oboe sky markers in the face of complete cloud cover. 428 Squadron was part of a 6 Group force assigned to one of these targets, and bombing took place from between 9 – 12,000 feet. There was no direct reference to the invasion at briefings, but crews were ordered to observe strict flight levels, and were prohibited from jettisoning bombs over the sea. Aircraft were taking off throughout the night, and some of those returning in dawn's early light were rewarded with a sight of the giant invasion armada, as it ploughed its way sedately across the Channel below. D-Day Night brought another thousand aircraft into action, including a 428 Squadron element, this time against road and railway communications targets at Coutances and Conde-sur-Noireau on the approaches to the beachhead. Two Ghosts were among those sent home by the Master Bomber with their loads intact. The following night brought attacks on four railway targets by over three hundred Halifaxes and Lancasters, while elements of 1, 5 and 8 Groups went for a six-way road junction in the Foret de Cerisy between Bayeux and St-Lo. 428 Squadron sat out the next night, and while the assault on enemy railway communications continued at five

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locations on the 8/9th, a contingent joined forces with Halifaxes from 433 Squadron for a mining operation around French ports. In the event the Ghosts were recalled. The following night was devoted to attacks on four airfields situated south of the beachhead, which might be used by the enemy to bring up reinforcements. All were successfully dealt with by elements of 1, 4, 6 and 8 Groups, while 428 and 433 Squadrons again targeted the waters around the French ports of Brest and Le Havre. Four railway objectives occupied over four hundred aircraft on the 10/11th, 6 Group going for the locomotive sheds at Versailles, as 428 Squadron gardened at Brest, St Nazaire and Lorient.

Since early in the month Lancasters had been arriving at Middleton-St-George, and they would soon bring an end to 428 Squadron's relative isolation from main force activities. It must have been a great relief to the crews to relinquish the unpopular Merlin powered Halifax, particularly as most other units had done so months earlier in favour of the Mk III. 428 Squadron had actually begun to convert to the new type back in January, but the process was cancelled, when it was decided to re-equip the squadron with Canadian-built Lancasters. For a time the Squadron would operate both Halifaxes and Lancasters until crew conversion was completed. A training accident on the 11/12th involving JN953 bestowed upon it the dubious honour of being the last Mk II Halifax to be written off by a main force squadron. Engine failure forced F/O Martin to force-land in Yorkshire, and he and his crew were able to walk away. Five other Ghosts were out mining on this night, again around St Nazaire and Lorient, and four repeated the exercise on the following night.

Meanwhile, a new campaign began on the night of the 12/13th, which would be prosecuted right through to the end of the war. With Germany now firmly on the back foot a concerted effort was to be made by both Bomber Command and the American 8th Air force against its synthetic oil industry. Three hundred Lancasters and Mosquitos of 1, 3 and 8 Groups carried out a stunningly accurate attack on the Nordstern refinery at Gelsenkirchen, hitting it with fifteen hundred bombs, and halting all production for a number of weeks. This deprived the German war effort of a thousand tons of vital aviation fuel for each day of the stoppage. While this was in progress, over six hundred aircraft drawn from 4, 5, 6 and 8 Groups bombed six communications targets leading to the Normandy front. It was during the 6 Group attack at Cambrai, that Canadian P/O Andrew Mynarski earned the posthumous award of the Victoria Cross for his heroics in a 419 Squadron Lancaster. 428 Squadron was not in action on this night. The first daylight operations by Bomber Command since the departure of 2 Group a year earlier were conducted against Le Havre on the evening of the 14th. The port was home to E-Boats and other fast, light naval craft, which posed a threat to Allied shipping serving the beachhead. The two-phase operation was opened by a 617 Squadron attack on the concrete pens with Tallboys, closely followed by a predominantly 1 Group force. 3 Group completed the assault at dusk, and few if any marine craft escaped the carnage unscathed. As this was in progress, elements of 4, 5 and 8 Groups were concentrating their efforts against enemy troop and transport positions at Aunay-sur-Odon and Evrecy. Other elements of 4, 6 and 8 Groups, including a maiden 428 Squadron Lancaster contingent, attended to railway installations at Cambrai and St Pol. The evening of the 15th was devoted to the bombing of Boulogne in a repeat of the previous night's operation against Le Havre, and this operation, by elements of 1,

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4, 5, 6 and 8 Groups was equally effective, although the town itself suffered its worst experience of the war. 428 Squadron played its part, and all of its crews returned safely.

A second new campaign opened on the night of the 16/17th, this one against flying bomb launching and storage sites. 1, 4, 5, 6 and 8 Groups committed four hundred aircraft between them to attacks on four targets in the Pas-de-Calais. Meanwhile on this night, a second force from 1, 4, 6 and 8 Groups continued the oil offensive at Sterkrade/Holten with a 428 Squadron Lancaster presence, but failed to inflict more than slight damage in the face of complete cloud cover. Railways were the principal objectives on the 17/18th, but over a hundred aircraft from 6 and 8 Groups bombed a constructional site at Oisement/Neuville-au-Bois in the Abbeville area. 428 Squadron's effort on this night involved four Halifaxes mining St Peter Port on Guernsey, and the operation was repeated by five Halifaxes on the following night with attention also being paid to St Malo. 428 and some other 6 Group squadrons went to a V-1 site at St Martin L'Hortier by daylight on the 21st, and bombed through complete cloud cover, while others joined in at a similar target at Oisemont, where the Master Bomber called off the attack after only limited bombing. Later that night 5 Group embarked on its first involvement in the current oil campaign, when sending two forces to the oil refineries at Wesseling, on the west bank of the Rhine south of Cologne and Scholven/Buer near Gelsenkirchen. Those bound for the former were picked up by night fighters as they made their way across the frontier region of Holland and Belgium, and a bitter battle ensued. By the time the badly mauled survivors reached home, thirty-seven Lancasters had fallen victim to the defences, mostly to night fighters. Four 5 Group squadrons, 44, 49, 57 and 619, had each lost six aircraft, although one of the 57 Squadron crews was plucked from the sea off Yarmouth without injury.

From this point on daylight operations were to become increasingly common as the summer progressed, while night operations continued unabated. The target for the Ghosts' Lancasters and some other 6 Group squadrons on the 23/24th was a V1 site at Bientques, one of four such targets assigned to forces from 3, 4, 6 and 8 Groups. The squadron also sent four Halifaxes to mine the approaches to Lorient and St Nazaire. On the following day three more sites were hit, 428 Squadron assigned to the one at Bameries, while also dispatching six Halifaxes to Brest, Lorient and St Nazaire. The Ghosts were in action again on the following night with eight Halifaxes mining at St Nazaire and Lorient, and then contributed Lancasters to raids on V-1 sites in the Foret de Eawy and at Wizernes on the 27/28th, when over seven hundred aircraft were involved at six separate aiming points. This was also the penultimate night of Halifax operations for the squadron, as six of the type were sent back to Lorient and St Nazaire. While some 6 Group squadrons were stood down for the month, operations continued for others, and the railway yards at Metz provided the target for the Canadians on the 28/29th, while Blainville was the objective for 4 Group. Both targets were hit, but a combined total of eighteen Halifaxes were shot down, along with one Lancaster from each operation. A handful of Ghost Halifaxes mined the approaches to Brest and Lorient on this night to conclude the squadron's twelve-month association with the type. The month ended with a raid on a road junction at Villers-Bocage on the evening of the 30th. It provided access for a German counter attack at a weak point in the Anglo-American lines, but after accurate bombing by the 3 and 4 Group main force crews, who were brought down by the Master

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Bomber to four thousand feet, the planned German attack was scrubbed. It had been a busy month for the whole Command, and the Ghosts had operated on twenty-one occasions

July and August were to be Bomber Command's most hectic months of the year, as the side-by-side campaigns against communications, oil and flying bomb sites all demanded attention. To this was about to be added tactical support for the ground forces as they broke out of the beachhead into Normandy, but the main emphasis during the first two weeks of July was unquestionably on flying bomb sites. Some 6 Group squadrons opened their July account on the afternoon of the 1st at Biennais, one of three sites to be targeted. Bombing had to be conducted on Oboe skymarkers in the face of almost complete cloud cover, and results could not be assessed. Following a two-night rest the squadrons returned to Biennais by daylight on the 4th, but it was that night that 428 Squadron carried out its first operation of the new month, when joining in on an attack on the railway yards at Villeneuve-St-Georges. The Ghosts suffered their first loss of a Lancaster during the course of this operation, and, indeed, their first operational casualty since April. KB756 crashed in France killing P/O Gay and one of his crew, while two others fell into enemy hands and three evaded capture. The squadron stayed at home then for a week, while others from the Group returned to Biennais on the night of the 5/6th, and took part in operations on the 6th, when over five hundred aircraft were sent against five V-1 storage sites, four of which were clear of cloud. The first major operation in support of the ground forces was mounted on the evening of the 7th by 467 aircraft drawn from 1, 4, 6 and 8 Groups. The target was the northern rim of Caen, behind a series of fortified villages from where enemy units were facing British and Canadian forces. W/C Daniels of 35 Squadron acted as Master Bomber, and the attack was accurate, if ultimately counter-productive, as few enemy troops were killed and eventual passage through the town was rendered difficult by rubble-blocked streets. Briefings took place at 3, 4, 6 and 8 Group stations on the 9th for six flying bomb sites, of which the 6 Group targets were a storage dump at Thiverny, and launching sites at Mont Candon and Ardouval, but the month's persistent cloud cover led to a lack of concentration at some of the aiming points. Almost two hundred Halifaxes from 4 and 6 Groups and eight 428 Squadron Lancasters attacked four sites on the night of the 12/13th, those from 6 Group having Bremont and Acquet as their aiming points, and there were no losses. While 428 Squadron enjoyed another week off a similar target at Anderbelck occupied elements from the Group on the 14/15th.

428 Squadron returned to the fray in the early hours of the 18th, to help provide tactical support for the British Second Army. The ground forces were about to launch Operation Goodwood, an armoured attack on enemy positions around Caen, and over nine hundred aircraft were to deliver a major assault on five fortified villages. American bombers also participated, but 5,000 of the 6,800 tons of bombs delivered onto the aiming points were carried by RAF aircraft. The operations were a stunning success, and in the absence of enemy fighters, only six aircraft were lost to flak. That night brought much further activity, including an attack by elements of 1, 6 and 8 Groups on the oil refinery at Wesseling near Cologne. 428 Squadron sent a contingent to what developed into a highly effective operation for the loss of a single 425 Squadron Halifax. A V1 site in the Pas-de-Calais provided the target for a 6 Group contingent on the 20th, including some Lancasters from 428 Squadron, which all returned safely.

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There had been no major operations against a German city target since Dortmund in May, while the Normandy landings and consolidation of the Allied foothold had been the overriding considerations. Now, on the night of the 23/24th, Harris launched an attack on Kiel by over six hundred aircraft, all but 110 of them Lancasters, including some from 428 Squadron. The force appeared suddenly and with complete surprise from behind a Mandrel RCM screen laid on by 100 Group, and inflicted heavy damage on the town and the port area, where all of the U-Boat yards were hit. This was followed on the 24/25th by the first of three major raids on Stuttgart over a five-night period, involving a force of over six hundred aircraft. Stuttgart had always proved a difficult target to hit because of its location in a series of valleys, although extensive damage had been inflicted upon it during the three raid series in February and March. The central districts became heavily damaged on this night for the failure to return of twenty-one aircraft. 428 Squadron's KB740 almost became one of these after a mid-air collision over France, which tore off the bomb doors, bent all of the propellers and caused the starboard-inner engine to catch fire. F/O Corbet carried out an emergency landing at Woodbridge without injury to the crew, and the aircraft was declared a write-off. 550 aircraft set out to return to Stuttgart on the following night, and delivered what would prove to be the most devastating of the three attacks. The operation involved a 428 Squadron contingent, and all returned without major incident.

An all-Lancaster force from 1, 3, 5 and 8 Groups returned to Stuttgart on the 28/29th, while elements of 1, 6 and 8 Groups targeted Hamburg. The night soon degenerated into a disaster for the Command, as night fighters intercepted the Stuttgart bound bomber stream over France in bright moonlight, and others caught the Hamburg force on the way home. Thirty-nine and twenty-two aircraft respectively were the numbers brought down, and 428 Squadron had to post missing one of its crews from the Hamburg raid. KB759 was lost without trace with the crew of P/O Magill. In the early morning of the 30th, almost seven hundred aircraft took off to attack six German positions facing predominantly American ground forces in the Villers Bocage - Caumont area. The Ghosts sat this one out having completed their month's work. Elements of 1, 6 and 8 Groups raided four V1 launching and storage sites on the night of the 31st, and this concluded a hectic but generally rewarding month for the Command. It had also been expensive, though, and many squadrons had sustained heavy casualties.

The first week of August was dominated by the campaign against flying bomb sites, and over seven hundred and fifty aircraft were involved in daylight operations on the 1st. In the event, weather conditions over the numerous aiming points appear to have been unsuitable for accurate bombing, and less than eighty crews bombed before the Master Bombers called a halt. All of the 428 Squadron crews were sent home with their bombs, and remained at home on the following day, when clear conditions allowed four sites to be attacked by almost four hundred aircraft. Over eleven hundred aircraft were involved in attacks on the same targets and others in the Foret de Nieppe and at L'Isle Adam in the early afternoon of the 3rd. 428 Squadron was in action, and W/C McLeish's aircraft was hit by flak. 6 and 8 Groups went back to the Bois-de-Cassan and Trossy-St-Maximin sites on the 4th, delivering effective attacks in clear conditions, and a modest four aircraft were lost from the 291 dispatched. 428 Squadron took part, and its crews reported heavy flak over the target. On the 5th more than

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seven hundred aircraft pounded the storage sites in the Foret de Nieppe and at St-Leu-d'Esserent. The 428 Squadron contingent was employed at the latter without loss.

From mid evening on the 7th aircraft began taking off to attack five aiming points ahead of Allied ground forces in the Normandy battle area. The Ghosts put up a maximum effort as part of a force of over a thousand heavy bombers, but because of the close proximity of Allied troops the attacks were carefully controlled by the Master Bombers, and only two thirds of the aircraft actually bombed. 428 Squadron was among those allowed to bomb, and three crews reported encounters with enemy fighters. F/O Janney's crew in KB780 claimed an FW190 destroyed, after it was seen to crash into the sea in flames. The squadron was up again later on the 8th for a raid on fuel and oil storage facilities in the Foret de Chantilly, and the target was left burning. Four of the squadron's aircraft were hit by flak and damaged to some extent. This was the day on which W/C Hull became the squadron's new commanding officer. The 9th saw 428 Squadron contribute aircraft to operations against V1 sites, and on the 10/11th it was an oil depot at La Pallice. The night of the 12/13th was to be particularly busy, with over eleven hundred sorties being launched on various major and minor operations. In one of them 380 crews of the main force were briefed for a raid on Brunswick, in which no Pathfinder aircraft were to take part. The intention was to gauge the ability of crews to locate and bomb an urban target purely on the strength of H2s. Meanwhile, almost three hundred aircraft would split the defences by attacking the Opel motor works at Rüsselsheim in southern Germany, 144 others were to bomb German troops and a road junction at Falaise, and a small raid would take place against flying bomb targets. 428 Squadron was involved in both the first and last-mentioned operations. In addition, numerous other sweeps, mining and support activity would keep the enemy night fighter controller on his toes, and make it more difficult to decide upon a response. Generally, apart from the Falaise operation, the night's huge effort was not rewarded with great success. At Brunswick, the bombing was scattered across the town and up to twenty miles distant, thus demonstrating that Pathfinders remained a necessity. Even so, their presence at the attack on the Opel works did not prevent much of the bombing from being wasted on open country, and the damage inflicted on the factory was insufficient to cause a loss of production. Twenty-seven and twenty aircraft respectively were lost, however, and this was a high price to pay for the poor return. 428 Squadron's KB758 failed to return from the Brunswick raid, having been shot down by a night fighter over Germany. F/O McGregor survived with one of his crew, but the remaining five perished in the wreckage.

The time was now fast approaching when Harris could claim that he had discharged his obligation to SHAEF, and could turn his attention once more upon industrial Germany almost to the exclusion of all else. However, tactical support for the ground forces was still required, and the afternoon of the 14th was devoted to large-scale operations in the Falaise area under Operation Tractable. Eight hundred aircraft were involved in the bombing of seven aiming points ahead of the Third Canadian Division, each controlled by a Master Bomber and deputy. 428 Squadron was involved, and most of the bombing was accurate, although some fell amongst Canadian troops in a quarry, killing thirteen men and injuring over fifty. Recriminations abounded thereafter over who was to blame, and some commanding officers were carpeted after their crews bombed too early, but it seems to have been a genuine accident brought about as much by events on the ground as in the air, and in truth, this was one of very

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few “friendly fire” incidents to involve Bomber Command while conducting ground support operations. In preparation for his new night offensive against Germany, Harris launched a thousand aircraft on the morning of the 15th to attack nine night fighter airfields in Holland and Belgium. 6 Group attended to those at Brussels and Soesterberg, and the impression was of a successful operation. Flying as part of the Soesterberg force, 428 Squadron’s KB749 blew up over the target, flinging clear the pilot, W/O Jakeman, and his flight engineer, who both survived to be taken prisoner, while the other five crew members lost their lives.

Now was the time for a gentle start to a new offensive against Germany, which, once in full swing, would continue without let-up or mercy until there was nothing significant left to bomb. On the night of the 16/17th over eight hundred aircraft set out for northern Germany, 348 of them containing crews briefed to attack the port of Kiel. The remainder, all Lancasters, and including the 428 Squadron contingent, carried on eastwards to the distant Baltic port of Stettin, where a highly accurate raid ensued, in which over fifteen hundred houses and twenty-nine industrial premises were destroyed, and five ships were sunk in the harbour all for the modest loss of five Lancasters. Among these was 428 Squadron’s KB751, which crashed into the Baltic with F/O Fairgrieve and five of his crew, and just one man saved himself to become a PoW. The attack on Kiel was moderately successful, and caused severe damage to the docks area and shipyards, but many bomb loads also fell outside of the town. Between 21.00 and 22.00 hours on the 18th almost three hundred aircraft set out for Bremen, the objective for countless raids over the preceding years, including the last of the thousand bomber raids in June 1942. The force on this night was not particularly large, and the bomb tonnage delivered was only half that used in any one of the Gomorrah raids on Hamburg, but the damage it inflicted was extreme. Over eight and a half thousand houses and apartment blocks were gutted by fire in central and north-western districts, the port area was devastated, and eighteen ships were sunk. It was impossible to list the number of industrial and commercial buildings reduced to ruins, or precisely how many people were killed, but the latter figure certainly exceeded a thousand. This notable success was gained for the loss of just one aircraft, which happened to be KB743 of 428 Squadron. It was shot down in flames, but the previously mentioned P/O Corbet and all but one of his crew survived in enemy hands. Many of the 428 Squadron participants landed away on return because of the state of the weather over base. A simultaneous operation was mounted against the synthetic oil refinery at Sterkrade by a predominantly 4 Group force of over two hundred aircraft, while other elements of 6 Group supported an attack on railway yards at Connantre.

After a week’s lull in main force operations the renewed assault on Germany continued on the night of the 25/26th, when a record 1,311 sorties were flown on major and support operations. The main effort was by over four hundred Lancasters of 1, 3, 6 and 8 Groups, whose crews were briefed to attack the Opel motor works at Rüsselsheim, which had escaped a telling blow two weeks earlier. Although the factory was quite severely damaged on this night, production of lorries was barely affected, and fifteen Lancasters were lost. F/S Maxwell’s was hit by flak, and he and the bomb-aimer sustained slight injuries as a result, while the flight engineer was mortally wounded, and died during the return flight. Meanwhile, 5 Group was failing to deliver an effective attack on Darmstadt, and 6 Group Halifaxes were contributing to a 4, 6 and 8 Group raid on coastal batteries at Brest. On the following night Kiel received its second

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heavy raid in less than two weeks, this time at the hands of around 350 Lancasters of 1, 3 and 8 Groups. Smoke screens created difficulties for the marker force, but heavy and widespread damage was inflicted upon the town's central and surrounding districts, and strong winds fanned the fires. On the 27th the Command launched its first major daylight raid over Germany since August 1941. The target was the Rhein-Preussen synthetic oil refinery at Meerbeck near Homberg, and the force of 220 Halifaxes and thirteen Lancasters from 4 and 8 Groups was escorted on the outward flight by nine squadrons of Spitfires. The attack was delivered through partial cloud cover on Mosquito-borne Oboe markers, backed up by Pathfinder heavies. Some accurate bombing was claimed, but the operation was generally inconclusive. Seven squadrons of Spitfires covered the withdrawal, and no aircraft were lost. 428 Squadron was also active during the day as part of a force sent against the V-Weapon site at Mimoyecques. The 28th brought the final operations against the flying bomb menace. Twelve sites were attacked by small numbers of aircraft employing the Oboe leader system, and within a few days of these operations the Pas-de-Calais was back in Allied hands. Stettin hosted its second heavy raid of the month on the 29/30th, when four hundred aircraft again inflicted heavy damage on the port city, with particular emphasis on areas not previously hit. Over fifteen hundred houses were destroyed along with thirty-two industrial premises, a two thousand ton ship was sunk, and more than a thousand people lost their lives. 428 Squadron posted missing the crew of F/O Plunkett, who were all killed when KB709 was shot down into the Baltic.

As the Allied ground forces advanced, the need for port facilities became pressing to maintain a steady supply line. Much of September would be devoted to the liberation of the major French ports still in enemy hands, principally Le Havre, Boulogne and Calais, and in preparation for this six enemy airfields in southern Holland were bombed by daylight on the 3rd. The assault on Le Havre began on the 5th, when over three hundred aircraft from 1, 3 and 8 Groups attacked enemy strong points around the port. While a similar operation was conducted on the following day, elements of 6 and 8 Groups, including 428 Squadron, carried out the final raid of the war on Emden, a target which had been left in peace for more than two years. 1, 3 and 8 Groups returned to Le Havre in bad weather on the 8th, and only a third of the three hundred-strong force released their bombs, doing so more in hope than expectation. While 428 Squadron stayed on the ground another operation was mounted against Le Havre on the 9th, but the continuing poor weather caused the Master Bomber to send the force home without bombing. Almost a thousand aircraft returned on the following day to pound eight enemy strong points, 428 Squadron this time taking part. Two hundred aircraft concluded the series on the 11th without a 428 Squadron contribution, and the German garrison surrendered to British forces a few hours later. Also by daylight on the 11th other elements of the Command raided synthetic oil plants at Castrop-Rauxel, Kamen and Gelsenkirchen, each force operating under the umbrella of a strong fighter escort. Similar targets were attacked at Dortmund, Scholven-Buer and Wanne-Eickel on the 12th, the two latter in the face of an effective smoke screen.

Also on the night of the 12/13th a two-pronged attack was mounted against southern Germany. 378 Lancasters of 1, 3 and 8 Groups returned to Frankfurt for the first time since the devastating raids in March, while a predominantly 5 Group force of two hundred Lancasters

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targeted Stuttgart. The former resulted in severe damage to the city's western districts, at a time when a large part of its fire brigade was absent helping to quell the fires at nearby Darmstadt, which had suffered the ordeal of a firestorm at the hands of 5 Group on the previous night. For Frankfurt this would prove to be the last raid of the war by RAF heavy bombers. It was a similar story of destruction at Stuttgart, where the north and west-central districts were ravaged by a firestorm, and over eleven hundred people were killed, all for the modest loss of four Lancasters. A 6 Group Halifax main force carried out a daylight raid on Osnabrück on the 13th, while an intended raid on Wilhelmshaven on the 14th was recalled, because the fighter escort was unable to take off in the weather conditions. The night of the 15/16th brought 428 Squadron back into action after four days off for a typical raid on Kiel, with much damage within the town, but a large wastage of bombs outside. The ill-fated Operation Market Garden, The "Bridge too far" saga, began on the morning of the 17th in the wake of attacks on enemy airfields and gun positions by elements of 1, 3 and 8 Groups during the night. Also, by breakfast time the first of over seven hundred aircraft had taken off to begin the liberation of Boulogne. A total of three thousand tons of bombs was delivered onto enemy positions around the port, and shortly afterwards Allied ground forces began their advance. 428 Squadron played its part in the operation, and Boulogne was returned to Allied hands after a week of heavy ground fighting. Bremerhaven wilted under its first heavy raid of the war on the night of the 18/19th, delivered by a 5 Group force of two hundred Lancasters. Accurate low level marking by the Mosquito element led to the destruction of over 2,600 buildings, as the central and port areas in particular were razed by fire.

The first operations in the campaign to liberate Calais took place on the 20th and involved over six hundred aircraft, including a contingent from 428 Squadron. They bombed German positions accurately in clear visibility, but further attacks would be required before the port was surrendered. Most of the Ghosts landed at Odiham on return. Access to the much needed Belgian port of Antwerp was blocked by heavy gun emplacements on the island of Walcheren at the mouth of the Scheldt, and the first of a number of operations had been mounted against them by 6 and 8 Groups on the 18th. Bad weather forced the attempt to be abandoned before any bombing took place, and a second effort on the 19th was recalled. It was not until the 23rd that conditions were right for another go, and 1 and 6 Groups provided the main force for the attack on the Domburg battery. The main fare that night was an attack on Neuss in the Ruhr by over five hundred aircraft drawn from 1, 3, 4 and 8 Groups, while 5 Group operated elsewhere. Over eight hundred aircraft departed their stations either side of 19.00 hours for their respective targets, and the bombing of Neuss, close by Düsseldorf, was concluded successfully for the loss of seven aircraft.

Later on the 24th operations continued against enemy positions around Calais, but were hampered by low cloud, and a third of the force was unable to bomb. Most of those doing so came below the two thousand feet cloud base, and exposed themselves to the lethal light flak, which claimed eight of them. It was a similar story on the 25th, when 428 Squadron conducted its first operation since the 20th, and only a third of more than eight hundred aircraft were able to bomb through breaks in the cloud. Conditions improved on the 26th, when 428 Squadron again took part, and over seven hundred aircraft concentrated their bombing on three aiming points near Calais and four gun emplacements at Cap Gris Nez. The 27th brought yet another

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tilt at German positions around Calais by 1, 3, 4 and 8 Groups, along with attacks on oil refineries at Bottrop and Sterkrade by 6 and 8 Groups, which 428 Squadron negotiated without major incident. The last assault on Calais took place on the 28th, and six gun batteries at Cap Gris Nez were again also bombed, although five of the 428 Squadron crews were sent home by the Master Bomber with their bombs still aboard. Shortly afterwards Canadian ground forces moved in and took the surrender of the enemy garrison. The 30th brought further operations against the oil installations at Sterkrade and Bottrop, but 428 Squadron had already completed its month's work, and had done so without sustaining casualties.

October was to be characterized by an unprecedented concentration of bombing on German cities, and a second Ruhr campaign would begin at the end of the first week. Ports were still a pressing priority, however, as the need for supplies increased to keep the Allied advance mobile, and Bomber Command was to play its part in weakening enemy resistance. The efforts to neutralize the batteries on Walcheren had proved ineffective, and it was decided instead to breach the sea walls, and thereby to inundate the gun positions, and also create difficult terrain for the defenders when the land offensive began. During daylight on the 3rd eight waves of thirty Lancasters each attacked the sea defences at Westkapelle, and the fifth wave created a breach, which was widened by those following. 617 Squadron aircraft were on hand with Tallboys, but in the event they were not needed. Many 6 Group squadrons, including 428, opened their October accounts on the 4th with a daylight raid on the port of Bergen in Norway. The closure to the enemy of the Biscay ports had resulted in a concentration of U-Boots at that location, and the majority of the attacking force of 140 aircraft was assigned to the concrete pens, which were in the process of being enlarged, while a smaller element was to bomb individual vessels. The operation was successful, but collateral damage in the town caused the deaths of sixty children in a school basement. The night of the 5/6th was devoted to the first raid on Saarbrücken for two years, which involved over five hundred aircraft from 1, 3 and 8 Groups. The raid was of the saturation variety, and almost six thousand houses were destroyed for the loss of just three Lancasters. This high return-low loss outcome would be repeated throughout the month and on to the end of the war, with only isolated occasions on which the defences gained the upper hand. During the afternoon of the 6th over three hundred aircraft took off to raid the oil refineries at Sterkrade and Scholven-Buer. The operations were carried out in clear conditions, and the predominantly 4 Group crews produced good bombing on accurate Pathfinder marking. The new Ruhr offensive opened at Dortmund that night, when over five hundred aircraft from 3, 6 and 8 Groups pounded the city, causing extensive damage to housing, industry and communications for the loss of five of their number. 428 Squadron put up a maximum effort, and all of its crews returned without incident, although most landed on 8 Group stations because of the weather conditions at base.

Following the failure of Operation Market Garden the Allied right flank had become exposed to a possible danger from enemy forces approaching through the frontier towns of Cleves and Emmerich. On the afternoon of the 7th both towns were left extensively damaged by forces of over three hundred aircraft. 1, 4, 6 and 8 Groups delivered a scattered and ineffective raid on Bochum on the 9/10th, in which the Ghosts took part, and when F/O Miller's Lancaster was hit by flak, the mid-upper gunner was killed. This was the first fatality since August. On the 12th 6

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Group's Halifax brigade raided the oil refinery at Wanne-Eickel, but the marking and bombing were not accurate on this occasion, and the refinery escaped damage, although a nearby chemicals works was destroyed. There were no major operations on the night of the 12/13th or on the following night, as Harris marshalled his forces for a spectacular twenty-four hours on the 14th. This was the day selected to launch Operation Hurricane, a demonstration to the enemy of the overwhelming superiority of the Allied air forces ranged against it. Before first light on the 14th over one thousand aircraft took off for Duisburg, arriving overhead around breakfast time to deliver some 4,400 tons of high explosives and incendiaries under the protection of a large fighter escort. To be over the Ruhr in daylight was still a dangerous practice, and the flak defences claimed fourteen aircraft before being overwhelmed. KB740 may have been one of these, but it certainly failed to return home with the crew of the now F/L Janney, and all on board were killed. Six other 428 Squadron crews landed in aircraft displaying the signs of flak hits. That night similar numbers returned to Duisburg to press home the point about superiority, and thus 2,018 aircraft had been dispatched against the city in around eighteen hours, and something like nine thousand tons of bombs had been dropped for the loss of twenty-one aircraft. It is remarkable, that this enormous effort was achieved without the inclusion of any 5 Group aircraft. They were, therefore, available for other duties, and took advantage of the night-time activity over the Ruhr to finally devastate Brunswick, which had escaped relatively lightly during four previous attacks in 1944.

On the night of the 15/16th over five hundred aircraft took part in the last heavy raid of the war on Wilhelmshaven, and 428 Squadron provided a contingent without loss. Bad weather at base again forced most crews to land away, sixteen of them selecting Horsham St Faith in Norfolk. Four nights later, after a rest for the heavy squadrons, elements of 1, 3, 6 and 8 Groups carried out a two-phase assault on Stuttgart, with four and a half hours between waves. The bombing was not concentrated, but severe damage was nevertheless inflicted upon central and eastern districts, and an important Bosch factory was hit. Three 428 Squadron Lancasters were hit by flak, and most of the squadron put down at Chedburgh on return. The largest Bomber Command force of the war, amounting to 1,055 aircraft took off between 16.00 and 17.00 on the 23rd to deliver Operation Hurricane's message to Essen. In view of the destruction already inflicted upon the city, and the likelihood that there was little left to burn, the bulk of the 4,500 tons of bombs was high explosive. Six hundred buildings were destroyed, while a further eight hundred sustained serious damage in a city, which had already surrendered its status as a major centre of war production. Only minor operations took place on the following night, and then, on the afternoon of the 25th the Hurricane force returned to Essen with over seven hundred aircraft, and destroyed a further eleven hundred buildings. The Krupp complex was among the industrial concerns badly damaged, and parts of it would remain out of action for the remainder of the war. Most of the city's surviving industry had been dispersed to other parts of Germany by this point, but its location within easy reach of Germany's western frontier would ensure further attention from Bomber Command, particularly as the ground action approached close to the end. KB737 failed to return to Middleton-St-George with the crew of F/O Raftery, an American in the RCAF, and he died with all but one of his crew. While this operation was in progress a 6 Group Halifax force raided the Meerbeck oil plant at Homberg. The target could not be seen through the complete cloud cover, and this prevented any assessment of the outcome.

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Cologne's turn to face the Hurricane force came first in the late afternoon of the 28th at the hands of over seven hundred aircraft. More than 2,200 apartment blocks were destroyed in districts north-east and south-west of the city centre, and much damage was inflicted upon power, railway and dockland installations. The assault on Walcheren had been ongoing throughout the month, and 5 Group carried out the final attacks on the 30th. The ground forces arrived on the following day to clear enemy resistance, and after a week of heavy fighting the island was taken. Even so, it would be a further three weeks before the approaches to Antwerp had been sufficiently cleared of mines to allow access for shipping. Later on the 30th nine hundred aircraft returned to Cologne and dropped four thousand tons of mostly high explosive bombs onto what remained of the city, causing massive damage. 428 Squadron took part, but sat out the follow-up attack twenty-four hours later.

November began with 428 Squadron operating against Oberhausen on the 1/2nd as part of a force of almost three hundred aircraft from 6 and 8 Groups. It was a scattered attack delivered through cloud, and other Ruhr towns probably felt the effects. The Hurricane force went to Düsseldorf on the evening of the 2nd with almost a thousand aircraft, and they pounded the northern half of the city, leaving over five thousand houses destroyed or seriously damaged. As events were to prove, this was the final heavy raid of the war on this much-bombed city. KB782 failed to return home, and there were no survivors from among the crew of F/O Holtze. Bochum was the target for over seven hundred aircraft from 1, 4, 6 and 8 Groups on the 4/5th, and here too damage was immense, amounting to more than four thousand buildings destroyed or severely afflicted, with almost a thousand people killed. German night fighters made contact with the bomber stream, and twenty-eight aircraft, most of them Halifaxes, were shot down. F/O Walker's KB763 was attacked by an ME163 rocket-powered fighter, which his gunners claimed as destroyed. KB742 overshot its landing on return, but F/O Paul and his crew walked away unhurt. Gelsenkirchen became the next Ruhr town to face a heavy Bomber Command assault, its ordeal coming by daylight on the 6th. The Nordstern synthetic oil refinery was the aiming point, and over five hundred aircraft bombed in its general area, while almost two hundred others attacked the town. 428 Squadron took part, and all of its crews returned safely for what would be for most of them nine days away from operations. An attempt by an all-Lancaster main force to bomb the oil refinery at Wanne-Eickel on the 9th was thwarted by heavy cloud, which extended up to 21,000 feet. The Master Bomber ordered the more than two hundred crews to bomb any built-up area, but the town of Wanne-Eickel reported very little damage.

The lull in operations for all but the now largely independent 3 Group took the Command through to the 16th, when a massive assault on the three small Rhineland towns of Heinsberg, Jülich and Düren was launched. They lay in an arc from north to east respectively of Aachen, and the attacks were to help an American advance towards enemy lines between Aachen and the Rhine, by cutting communications to the front. 1,188 Bomber Command aircraft were committed to the destruction of the towns, 1 and 5 Groups forming the largest force of almost five hundred aircraft with Pathfinder support to attack Düren. The assault took place in mid afternoon in good bombing conditions, and over three thousand people were killed as the built-up area was levelled. Jülich was assigned to over four hundred Halifaxes and Lancasters

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of 4, 6 and 8 Groups, for which 428 Squadron contributed aircraft, while 3 Group dealt with Heinsberg, and both towns were also left severely damaged. On the 18th over 450 aircraft from 4, 6 and 8 Groups delivered a scattered attack on Münster, while later that evening a 1 Group raid was mounted against the oil refinery at Wanne-Eickel. Some additional damage was caused, and a nearby colliery was put out of action. 1, 6 and 8 Groups raided the oil refinery at Castrop-Rauxel on the 21/22nd, and the plant is believed to have been put out of action for the remainder of the war. The general decrease in operational activity during November allowed most of the heavy squadrons to enjoy a rest period over the ensuing few days. The target on the 27/28th was Neuss, where the eastern districts received most of the bombs causing moderate damage, and many 428 Squadron aircraft landed away on return because of the weather conditions at base. On the last night of the month 428 Squadron joined a large force from 1, 4, 6 and 8 Groups to attack Duisburg, where, despite complete cloud cover, over five hundred houses were destroyed.

December began for the Ghosts with a heavy raid on Hagen in the Ruhr on the 2/3rd when almost five hundred aircraft from 1, 4, 6 and 8 Groups pounded central, eastern and southern districts, leaving over sixteen hundred houses and ninety industrial buildings destroyed or seriously damaged. The squadron's KB766 became uncontrollable after icing up at the French coast, and F/O Laturner ordered his crew to bale out before carrying out a crash-landing near Beauvais. He and four others came through unscathed, but two members of the crew were killed. Two nights later 1, 6 and 8 Groups delivered a heavy raid on Karlsruhe, which turned into another crushing blow on a German city target, carried out simultaneously with the 5 Group destruction of the unimportant and hitherto unmolested town of Heilbronn, where seven thousand people died under the bombs. Almost five hundred aircraft from 1, 4, 6 and 8 Groups targeted Soest on the 5/6th, a town just north of the by now famous Möhne Dam. The northern districts were hardest hit, where the railway installations were situated, and a thousand houses were destroyed. 428 Squadron's KB768 collided with a 426 Squadron Halifax over Warwickshire on the way out, and both aircraft crashed near Rugby. There were no survivors from the crew of F/L Shewfelt or from the Halifax. A busy night on the 6/7th saw three major operations and many of a minor nature, which in total involved over thirteen hundred sorties. 1, 3 and 8 Groups raided the oil refinery at Leuna near Merseburg in eastern Germany, while a predominantly 4, 6 and 8 Group assault took place at Osnabrück and 5 Group attacked Giessen.

While 428 Squadron now enjoyed eight days off the order of battle, the last heavy night raid on Essen was delivered by over five hundred aircraft on the 12/13th. The Krupp complex was in the centre of the bombing pattern, and nearly seven hundred houses were also destroyed. A three hundred strong Lancaster heavy force drawn from 1, 6 and 8 Groups targeted two I.G. Farben chemicals factories at Ludwigshafen and nearby Oppau on the 15/16th, and caused serious damage at both sites. Most of the 428 Squadron participants landed at Horham on return. The ancient city of Ulm was earmarked for its first and only raid of the war on the evening of the 17th. Unlike Freiburg and Heilbronn, however, it did contain targets of industrial significance, principally two large lorry factories. 317 Lancasters from 1 and 8 Groups provided the battering ram, and in twenty-five horrific minutes over fourteen hundred tons of bombs rained down, laying waste to 80% of the city's built-up area. Fortunately, an

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evacuation of women and children had taken place earlier in the day, but even so, seven hundred people lost their lives. A simultaneous operation by over five hundred aircraft from 4, 6 and 8 Groups on Duisburg involved Lancasters from 428 Squadron, and this too was a highly destructive raid. The final third of the month involved the squadron in seven more operations, three of them against railway installations, and three more to lay mines. On the 21/22nd Lancasters and Halifaxes of 4, 6 and 8 Groups attacked the Nippes railway yards at Cologne, but poor weather conditions rendered the operation ineffective. Over three hundred aircraft from 4, 6 and 8 Groups attacked Lohausen and Müllheim airfields on the 24th, and eight 428 Squadron Lancasters were hit by flak over the former before landing at Wethersfield on return.

The final wartime Christmas Day was celebrated peacefully on the stations, but the Boxing Day festivities were curtailed for some crews from each Group when the Command called for attacks on troop positions around St Vith following the German breakout in the Ardennes on the 16th. 6 Group carried out an inconclusive raid on the railway yards at Opladen on the 27/28th, from which F/O Page and his crew failed to return in KB798, and all were killed. There was a mid afternoon take-off for crews on the 29th, as they joined up with elements of 1 and 8 Groups to form a force of more than three hundred aircraft bound for the Ruhr. The target was the oil refinery at Scholven-Buer, where around three hundred high explosive bombs found the mark. Over three thousand others landed in the town and its environs, causing damage to property and two collieries. 428 Squadron took part in its final operation of the year on the evening of the 30th, when over 450 aircraft attacked the Kalk-Nord railway yards at Cologne. The size of the 4 and 6 Group main force suggested that this was an area raid on that part of the city containing the yards. Cloud made precision difficult, but the yards were severely damaged, along with two adjacent passenger stations. Two ammunition trains are reported to have blown up, and road communications were also disrupted.

All things considered, it had been a good year for 428 Squadron, although its losses in the first half of the year were almost certainly artificially low as a result of its withdrawal from operations over Germany during the winter offensive, and its predominantly mining employment. As the German Ardennes offensive faltered, it was clear that the coming year would bring victory, although much remained to be done before the tenacious and courageous enemy forces finally laid down their arms. Some squadrons would sail through the final four months of the bombing war with barely a scratch, while others would sustain heavy casualties.

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1945

Over on the continent the New Year started with a bang, as the Luftwaffe launched its ill-conceived and ultimately ill-fated Operation Bodenplatte at first light on New Year's Morning. The intention to destroy Allied aircraft on the ground at the recently liberated

airfields in France, Holland and Belgium was only modestly achieved, but at an unacceptably high price. The entire day fighter strength was committed to low level bombing and strafing attacks into the teeth of the airfield flak defences, and the survivors then had to run the gauntlet of Allied fighters to make their escape. Around 250 aircraft failed to get home, with approximately 150 of their pilots being killed, wounded or taken prisoner, and this was a setback from which the Luftwaffe would never recover. The operation also produced some very jittery American anti-aircraft gunners, who, for the remainder of the day and night, fired at anything that flew, and a number of Bomber Command aircraft fell victim to "friendly fire" incidents. The major priorities for the Command in these final months of the bombing war were the continued dislocation of Germany's railway network, and the assault on her oil production. Both had been ongoing for a long time, but the offensives would now gain momentum. Any city with a functioning railway or an oil-related production site was to be area bombed, and the familiar names of the past would continue to feature. W/C Hull relinquished command of the Ghosts on this day, and was succeeded by W/C Gall, who would remain in post to the end of hostilities and beyond.

Two major operations were mounted on the night of the 2/3rd, the larger an all-Lancaster assault on Nuremberg involving over five hundred aircraft from 1, 3, 6 and 8 Groups. For almost the first time at this target an accurate and concentrated attack was delivered, in which over 4,600 houses, most of them apartment blocks, were destroyed, along with two thousand medieval houses and four hundred industrial buildings. More than eighteen hundred people lost their lives on the ground, and in return the defenders claimed five Bomber Command aircraft. Ludwigshafen was also heavily bombed on this night by a force of almost four hundred aircraft, most of them 4 and 6 Group Halifaxes, and two of the synthetic oil producing I G Farben chemicals works were severely damaged, as were a number of railway installations. 428 Squadron took part in the former, and all of its crews returned. The last large-scale area raid of the war on Hanover, and the first against the city since October 1943, was undertaken by six hundred aircraft from 1, 4, 6 and 8 Groups on the night of the 5/6th. 428 Squadron contributed aircraft to a successful attack, which left almost five hundred apartment blocks in ruins. The squadron sustained no losses, but F/O Mytruk's windscreen was shattered by an exploding aircraft. The same Groups pounded Hanau and its railway yards on the 6/7th, as elements of 1 and 3 Groups did likewise at Neuss. On the 7/8th elements from all but 4 Group carried out the final heavy raid of the war on Munich, and returning crews claimed a successful attack.

There was little activity for the heavy squadrons thereafter until the 13th, the day on which KB793 was lost to a training accident. The port-inner engine caught fire during the course of a cross-country exercise, and P/O McMullen ordered his crew to bale out, which they did successfully. The pilot remained at the controls to ensure the Lancaster did not crash on Darlington, but was then too low to escape, and he died in the ensuing crash. Two operations were mounted against the railway yards at Saarbrücken on this day, firstly by 3 Group, and later by 4, 6 and 8 Groups. 428 Squadron did not operate on this night, but supported a highly destructive two-phase assault by 1, 5, 6 and 8 Group Lancasters on the synthetic oil plant at Leuna on the following night, while the Halifaxes concentrated on the railway yards at Grevenbroich. On the 16/17th 428 Squadron joined others from 1, 6 and 8 Groups to attack the

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Braunkohle-Benzin synthetic oil plant at Zeitz near Leipzig, part of which sustained heavy damage for the loss of ten Lancasters. The Halifax force, meanwhile, was pounding the city of Magdeburg in an operation claimed by the Command to be highly destructive. Minor operations held sway from then until 280 Lancasters from 1, 3 and 8 Group attacked a benzol plant at Duisburg on the 22/23rd. The target was identified in the moonlight and severely damaged, as was a nearby steelworks belonging to the Thyssen concern. The only other significant raid before the end of the month came on the 28/29th against railway yards and an aero-engine factory on the northern edge and surrounds of Stuttgart. Six hundred aircraft took part, including a contingent from 428 Squadron, but cloud cover led to a scattered and inconclusive outcome, and most of the 428 Squadron crews landed away on return. One did not arrive back, KB770 having crashed in Germany killing S/L Kay and four of his crew. It was his first operation as a Flight commander. Earlier in the day KB763 had crashed during a training flight, after breaking through cloud near Stockton-on-Tees. P/O Clark and four other occupants were killed, and one man survived with injuries.

The weather was not helpful during the first week of February, as large areas of Germany were concealed by cloud. This certainly affected the accuracy of the operations mounted on the night of the 1/2nd, which included raids on Ludwigshafen and Mainz. 428 Squadron took part in the former, which was a 1, 6 and 8 Group Lancaster affair, and considerable damage was inflicted upon housing and railway installations for the loss of six aircraft. Three heavy raids were mounted on the following night, 428 Squadron joining in a 1, 3, 6 and 8 Group Lancaster attack on Wiesbaden. KB725 turned back after its port-outer engine failed, and both inner engines then became troublesome. F/L Gadkin attempted a landing at Sandy Tees airfield, and he and the flight engineer sustained injuries, the latter serious, and both gunners lost their lives. KB792 exploded over the target, and the rear gunner somehow managed to escape with his life, but F/L Berry and the rest of his crew perished. A predominantly Halifax force, meanwhile, was at Wanne-Eickel, but the three hundred aircraft failed to find the oil refinery with their bombs through cloud. The Ghosts were not in action on the 3/4th, but took part in an ineffective raid on Bonn by a mainly Halifax force of over two hundred aircraft on the 4/5th, while another largely Halifax effort failed in its attempt to hit a coking plant at Osterfeld. In preparation for an advance into Germany by the British XXX Corps in the Reichswald region the Command was ordered to bomb the frontier towns of Goch and Cleves, which formed part of the enemy defences. On the night of the 7/8th 4, 6 and 8 Groups attacked the former, and 1 and 8 Groups the latter, leaving both heavily damaged. Only one of the 428 Squadron crews bombed, while the others were sent home with theirs still aboard. On the following night 475 Lancasters from 1, 5 and 8 Groups took off for Pölitz near Stettin, at the eastern end of Germany's Baltic coast, to attack the oil refinery, and they put an end to all further wartime production. In contrast, a simultaneous raid on the refinery at Wanne-Eickel by 4 and 6 Group Halifaxes failed to find the mark, and little damage resulted. Like most of the other heavy units 428 Squadron did not operate after Goch until returning to the fray on a night that would unjustly define for many post war commentators the character of Bomber Command's war.

The night of the 13/14th brought the first of the Churchill inspired heavy raids on Germany's eastern cities under Operation Thunderclap. The target was the beautiful and historic city of

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Dresden, which had not been attacked by the Command before, but was now to face a two-phase assault opened by 5 Group employing its low level marking method. A layer of cloud stretched across the target area, and this interfered to an extent with the precision of this part of the raid, in which 244 Lancasters delivered more than eight hundred tons of bombs. Fires gained a hold, however, and they acted as a beacon to the 529 Lancasters of 1, 3, 6 and 8 Groups following three hours behind. By the time of their arrival the skies had cleared, and a further eighteen hundred tons of bombs rained down onto the hapless city. The result was a firestorm of gigantic proportions, certainly equalling that at Hamburg eighteen months earlier, and there was no escape for the population, massively swelled by an influx of refugees from the eastern front. A figure of 35,000 fatalities has been settled upon, although some commentators would have us believe the figure to be substantially higher. 428 Squadron took part, and all of its crews returned without major incident. A second operation on this night took the Halifax brigade to Böhlen to attack the Braunkohle-Benzin oil plant. Conditions were very poor, and the bombing was consequently scattered and inconclusive, but at least losses amounted to just one Halifax. The following night was devoted largely to Chemnitz, but heavy cloud helped to spare the city from a fate similar to that of Dresden, and much of the bombing found open country. 428 Squadron again counted all of its aircraft home. A series of raids on the town of Wesel, which stood in the way of the Allied advance, began on the 16th, and by its conclusion in March there would be little of it left.

Among the operations during the remainder of the month were the last raids of the war on some familiar names. Dortmund experienced its final night raid on the 20/21st at the hands of five hundred aircraft, but it still had one major daylight ordeal to undergo in March. Earlier in the day KB855 had been force-landed by W/C Gall at Middleton-St-George following loss of power on both port engines during a training sortie, and there were no injuries. 6 Group Halifaxes were engaged in an operation against an oil refinery at Monheim on this night. An area attack on Worms followed for the Halifaxes twenty-four hours later, which left almost 40% of the town in ruins, while Duisburg wilted under its last pounding, and more of its buildings were reduced to rubble by an all-Lancaster main force, which included a contingent from 428 Squadron. A daylight raid on the 23rd by Halifaxes of 4 and 6 Groups delivered three hundred high explosive bombs onto the Krupp works at Essen, while that night 1, 6 and 8 Group Lancasters carried out the only area bombing raid of the war on Pforzheim. In twenty-two horrific minutes an absolute catastrophe was visited upon the town and its inhabitants, as a large part of the built-up area was engulfed in flames, and seventeen thousand people lost their lives, the third highest death toll at a German urban target. 6 Group Halifaxes took part in a raid at Kamen on the 24th, where an oil refinery was the objective. Mainz provided the Ghost's target on the 27th, as part of a force of over four hundred aircraft, 75% of which were Halifaxes. Although there was a complete cloud cover, which necessitated the use of skymarkers and then prevented an assessment of the outcome, it was a devastating raid that left over 5,600 buildings in ruins and killed eleven hundred people. The Ghosts took off on the 28th to participate in an operation against Neuss, but the entire force was recalled.

Mannheim's long and unhappy association with Bomber Command came to an end on the afternoon of the 1st of March, although its final ordeal was unobserved by the 1, 6 and 8 Group crews above the cloud cover. 428 Squadron welcomed its crews home, and then sent

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them out again on the 2nd of what would prove to be a surprisingly busy month, considering the enemy's hopeless situation. Two forces set out to bomb Cologne for the last time, the first, which included the 428 Squadron element, numbering seven hundred aircraft. They inflicted massive damage upon the already shattered city, but the second attack by 3 Group had to be abandoned after only fifteen aircraft had bombed, because of a fault with the G-H station in England. It hardly mattered, and the city fell to American forces four days later. Having escaped serious damage on the night after Dresden, Chemnitz eventually succumbed to Operation Thunderclap in a raid by over seven hundred aircraft on the evening of the 5th. Parts of its central and southern districts became engulfed in flames, and a number of important war industry factories were put out of action. Problems on this night began early on for 6 Group, whose aircraft encountered icing conditions within minutes of taking off, and many crashes occurred as a result. 428 Squadron's KB778 was a possible victim of the conditions, but not until the return flight across Belgium, when it came down in the Ardennes while flying low. Three members of the crew were killed, and F/O Mytruk sustained injuries, but three others emerged from the wreckage unscathed. F/L Pratt and his crew arrived home in KB838 to claim an ME262 jet fighter destroyed, after it was seen to explode in response to their return fire.

The town of Dessau had to wait until this penultimate month of the bombing war to receive its one and only heavy raid, and this took place at the hands of over five hundred aircraft from 1, 3, 6 and 8 Groups on the 7/8th. The attack was almost certainly aimed at the railway installations, but it turned into another devastating area raid. Many 428 Squadron aircraft landed at Blackbushe short of fuel. The Halifaxes of 4 and 6 Groups went to Hemmingstedt on this night, but missed the Deutsche Erdölwerke by at least two miles. The following night was devoted to Hamburg and Kassel, the former attacked by a predominantly Halifax main force, which had the shipyards as its specific objective. These were assembling the new Type XXI U-Boats, which could remain submerged for extended periods, and would have been a serious threat had they been available to the Kriegsmarine earlier. In the event, Hamburg lay beneath a layer of cloud, and the bombing was not concentrated. Meanwhile, other elements of the Group spent part of the night mining around Heligoland.

A new record was set in the late morning of the 11th, when 1,079 aircraft took off for the final raid of the war on Essen. It was the largest force ever sent to a single target, and they contributed to another punishing assault on this ravaged city at the end of an almost personal battle spanning a little under five years. Even so, it had only been during the last two years, since the introduction of Oboe, that the bomber had prevailed. Many gallant crews had fallen during the various campaigns, but Essen now lay totally ruined, having lost seven thousand of its inhabitants to air raids. The record was short-lived, and was surpassed a little over twenty-four hours later, when 1,108 aircraft departed their stations in the early afternoon of the 12th to deliver the final raid of the war on Dortmund, an operation that effectively finished it as a functioning city. The Group's Lancaster squadrons rested on the 13/14th, while the Halifaxes joined their 4 Group counterparts in the bombing of Wuppertal-Barmen. Zweibrücken was another new name on a target list, and this town was attacked by over two hundred aircraft from 6 and 8 Groups, including a contingent from 428 Squadron on the evening of the 14th. The intention to block the through-passage of all enemy troops and equipment was achieved,

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and, in fact, every public building and 80% of the houses were flattened. Benzol plants at Bottrop and Castrop-Rauxel occupied Halifaxes of 4 and 6 Groups on the 15th, while that night 428 Squadron joined in on a destructive operation by Lancasters and Halifaxes of 4, 6 and 8 Groups at Hagen. KB846 was attacked by a JU88 on the way home, which made nine passes, but was eventually shot down for its trouble. With a burning starboard wing F/L Crafton ordered the crew to bale out, and he and the rear gunner did so safely. The other five crew members were killed, and whether they died in the ensuing crash or during the engagement is unclear.

On the 16/17th almost three hundred Lancasters and Mosquitos of 1 and 8 Groups carried out the final raid of the war on Nuremberg, the city that had been the target on the Command's blackest night a year earlier. A punishing blow was delivered, but the night fighter response was fierce, and twenty-four 1 Group Lancasters were shot down. As this operation was in progress, two hundred 5 Group Lancasters attacked the historic and minimally industrial city of Würzburg in central-southern Germany. In seventeen minutes of carnage, over eleven hundred tons of bombs were dropped with great accuracy, destroying 89% of the built-up area and killing between four and five thousand people. In the light of this and other similar catastrophes visited upon the German homeland at a time of imminent defeat, it is possible to comprehend, if not to condone, the murderous attitudes of a small minority of German officials, who took their vengeance upon downed Allied airmen. Two nights later Witten was area-bombed by a predominantly Halifax force of three hundred aircraft from 4, 6 and 8 Groups, and around 60% of its built-up area was reduced to rubble. Oil refineries at Böhlen and Hemmingstedt were put out of action on the 20/21st, the latter by Lancasters of 1, 6 and 8 Groups including a contingent from 428 Squadron. On the afternoon of the 22nd two hundred 1, 6 and 8 Group Lancasters attacked the railway yards at Hildesheim, and in the process reduced 70% of the town to ruins, destroying over 3,300 apartment blocks and killing more than sixteen hundred people. KB777 was abandoned on the way home with an engine feathered and on fire, but F/L Hadley and two of his crew lost their lives, while the four survivors were taken prisoner. At the same time a hundred 6 Group Halifaxes attacked Dorsten, a rail and canal centre on the approaches to the Ruhr, and followed this up two days later with a devastating raid on nearby Gladbeck, while 1 and 6 Group Lancasters provided the main force for an assault on the Mathias Stinnes oil plant at Bottrop, over which W/C Gall's aircraft was hit by flak. Münster was the objective for 4 and 6 Group Halifaxes on the 25th, when smoke prevented an assessment of the results, and the Lancasters of 1 and 6 Groups paid another visit to Hanover. On the 27th Paderborn was virtually erased from the map in a fifteen-minute rain of terror by an all-Lancaster heavy force, and on the 31st an attempt to hit the Blohm & Voss U-Boat yards at Hamburg resulted in further destruction within the city. This was 428 Squadron's final outing of the month, and it proved to be a testing experience for many of its crews. Eight were attacked by ME262 jet fighters, and F/O Payne's gunners fired upon one of the assailants as it attacked another Lancaster. The fighter burst into flames, and was seen to spiral earthwards with pieces breaking off. Eleven aircraft failed to return, and this was the last time that the Command's losses would reach double figures.

April, the final month of the bombing war, began for 428 Squadron with an operation against an oil refinery at Leuna on the 4/5th, while a number of crews also carried out mining sorties

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in Oslo Fjord. F/L Laturner and his crew walked away from the wreckage of KB795 after it crashed on landing at Middleton-St-George on return from a training sortie on the 6/7th. Hamburg hosted its last major raid of the war on the 8/9th, when over four hundred aircraft from 4, 6 and 8 Groups went for the shipyards. The Americans had attacked the same area earlier in the day, and it was impossible to distinguish the damage between the two operations. The following night was devoted to a 1, 3 and 8 Group Lancaster assault on Kiel, where almost six hundred aircraft damaged all three shipyards, capsized the Admiral Scheer pocket battleship, and hit the Admiral Hipper and the Emden. Under cover of the main raid twenty aircraft from 424, 427, 429 and 433 Squadrons slipped in to lay mines in Kiel Bay. Railway yards at Leipzig occupied a mixed force of 6 Group Lancasters and Halifaxes on the 10th, before 428 Squadron had a couple of days off. The Ghosts returned to battle when 3 and 6 Groups got together on the 13/14th to provide the main force for an attack on Kiel's U-Boat yards. Most 428 Squadron aircraft landed at Church Broughton on return, where KB816 overshot the landing in the hands of F/L Acree and crashed, although without injury to the occupants. Absent was the squadron's KB784, which was hit by flak both outbound and inbound, and eventually had to be ditched in the sea by F/O Payne. The rear gunner went down with the aircraft, but the others spent twelve uncomfortable days in their dinghy before coming ashore in enemy-held territory, and they were taken into captivity. Happily, this was the Ghost's final failure to return of the war. The last area-bombing raid of the war was directed at Potsdam on the 14/15th, and this was the first incursion by RAF heavy bombers into the Berlin defence zone since March 1944. The attack, which did not involve 428 Squadron, was accurate, although some of the bombing spilled over into Berlin itself. Two nights later elements of 6 and 8 Groups attacked the railway yards at Schwandorf in south-eastern Germany, causing extensive damage, and this time 428 Squadron was present.

On the 18th, during another four-day break for 428 Squadron, almost a thousand aircraft presented themselves over the island of Heligoland, and left behind them a cratered moonscape. The bombing war ended for some squadrons at Bremen on the 22nd, on what proved to be the Command's penultimate day of operations. The south-eastern suburbs of the city were targeted ahead of the British XXX Corps assault, which was to follow two days later. Although over seven hundred aircraft were present, the Master Bomber called a halt after less than two hundred had bombed, when the target disappeared beneath smoke, dust and cloud, and the 428 Squadron element brought their bombs home. The long-awaited final day of heavy bomber operations dawned on the 25th to the sound of over 350 Lancasters of 1, 5 and 8 Group taking off for the SS barracks at Hitler's Eaglesnest retreat at Berchtesgaden in the Bavarian mountains. It was almost a symbolic operation and the bombing appeared to be accurate. Later that afternoon elements of 4, 6 and 8 Groups attacked heavy gun positions on the island of Wangerooge in the German Frisians. They were barring the approaches to the German ports, but little damage was done to them in their concrete housings. This proved to be a tragic final main force operation, with six aircraft being lost in the target area through collisions. Four of the aircraft, two Lancasters and two Halifaxes belonged to 6 Group squadrons, and twenty-eight Canadians lost their lives. 428 Squadron's crews all returned without major incident. That night 5 Group carried out a raid on an oil refinery at Tonsberg in Norway, and then, for all but 100 Group and the 8 Group Mosquito contingent, it was all over.

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Sadly for 428 Squadron a crew was lost to a training accident on the 30th. KB879 crashed in Staffordshire after structural failure, and F/L Campbell and his crew all died.

428 Squadron remained at Middleton-St-George until the end of May, when it returned to Canada, and was disbanded in September.

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STATIONS

DALTON	07.11.42. to 01.06.43.
MIDDLETON-ST-GEORGE	01.06.43. to 31.05.45.

COMMANDING OFFICERS

WING COMMANDER A EARLE	07.11.42. to 20.02.43.
WING COMMANDER D W M SMITH DFC	21.02.43. to 14.09.43.
WING COMMANDER W R SUGGITT DFC	15.09.43. to 30.10.43.
WING COMMANDER D T FRENCH DFC	31.10.43. to 08.05.44.
WING COMMANDER W A G McLEISH DFC	09.05.44. to 07.08.44.
WING COMMANDER A C HULL DFC	08.08.44. to 01.01.45.
WING COMMANDER M W GALL	02.01.45. to 02.06.45.

AIRCRAFT

WELLINGTON III/X	07.11.42. to 06.43.
HALIFAX II/V	06.43. to 06.44.
LANCASTER X	06.44. to 09.45.

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SECTION 2

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OPERATIONAL RECORD

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OPERATIONAL RECORD

OPERATIONS	SORTIES	AIRCRAFT LOSSES	% LOSSES
268	3433	67	2.0

CATEGORY OF OPERATIONS

BOMBING	MINING
206	62

WELLINGTONS

OPERATIONS	SORTIES	AIRCRAFT LOSSES	% LOSSES
35	350	17	4.9

CATEGORY OF OPERATIONS

BOMBING	MINING
26	9

HALIFAXES

OPERATIONS	SORTIES	AIRCRAFT LOSSES	% LOSSES
122	1406	32	2.3

CATEGORY OF OPERATIONS

BOMBING	MINING
69	53

LANCASTERS

OPERATIONS	SORTIES	AIRCRAFT LOSSES	% LOSSES
111	1677	18	1.1

ALL BOMBING

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TABLE OF STATISTICS

(Heavy squadrons)

Out of 59 Lancaster squadrons.

40th highest number of Lancaster overall operations in Bomber Command.
39th highest number of Lancaster sorties in Bomber Command.
43rd highest number of Lancaster operational losses in Bomber Command.

Out of 32 Halifax squadrons.

23rd highest number of Halifax overall operations in Bomber Command.
26th highest number of Halifax sorties in Bomber Command.
20th highest number of Halifax operational losses in Bomber Command.

Out of 42 Wellington squadrons.

41st highest number of Wellington overall operations in Bomber Command.
36th highest number of Wellington sorties in Bomber Command.
29th highest number of Wellington operational losses in Bomber Command.

Out of 15 squadrons in 6 Group.

12th highest number of overall operations in 6 Group.
2nd highest number of sorties in 6 Group.
6th highest number of aircraft operational losses in 6 Group.

Out of 8 Wellington squadrons in 6 Group.

Lowest number of Wellington overall operations in 6 Group.
4th highest number of Wellington sorties in 6 Group.
3rd highest number of Wellington operational losses in 6 Group.

Out of 11 Lancaster squadrons in 6 Group.

2nd highest number of Lancaster overall operations in 6 Group.
2nd highest number of Lancaster sorties in 6 Group.
4th highest number of Lancaster operational losses in 6 Group.

Out of 15 Halifax squadrons in 6 Group.

12th highest number of Halifax overall operations in 6 Group.
14th highest number of Halifax sorties in 6 Group.
8th highest number of Halifax operational losses in 6 Group.

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SECTION 3

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AIRCRAFT LISTING

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WELLINGTON. **From November 1942 to June 1943.**

X3541 NA-N	To 29 OTU.
X3543	To 29 OTU.
X3545	From 466Sqn. To CGS.
X3546	From 466Sqn. To CGS.
X3550 NA-J	To 17 OTU.
Z1718	To 18 OTU.
Z1719 NA-P	To 18 OTU.
Z1722	To 17 OTU.
Z1727 NA-K	From 156Sqn. To 1485Flt.
BK154	To 16 OTU.
BK155	To 1485Flt.
BK156	To 18 OTU.
BK337	From 425Sqn. To 427Sqn.
BK562	To 30 OTU.
BK563 NA-R	To 29 OTU.
BK564 NA-R	FTR Bochum 29/30.3.43.
DF635 NA-I	From 156Sqn. FTR Duisburg 8/9.4.43.
DF668	From 156Sqn. To 16 OTU.
HE158 NA-G	To 21 OTU.
HE173	Crashed soon after take-off from Dishforth for night training exercise 31.1.43.
HE174	To 20 OTU.
HE175 NA-U	FTR Bochum 29/30.3.43.
HE176 NA-F	FTR Stuttgart 14/15.4.43.
HE177 NA-G	Crashed on landing at East Moor on return from mining sortie 22.5.43.
HE239 NA-Y/L	To 20 OTU.
HE282	To 20 OTU.
HE319 NA-Y	FTR Wuppertal 29/30.5.43.
HE321 NA-Z	FTR Duisburg 12/13.5.43.
HE322 NA-J	Crashed on take-off from Middleton-St-George when bound for Düsseldorf 11.6.43.
HE432 NA-C	FTR Kiel 4/5.4.43.
HE505 NA-X	To 30 OTU.
HE543 NA-D	FTR from mining sortie 28/29.4.43.
HE656 NA-A	From 424Sqn. FTR Duisburg 12/13.5.43.
HE684	From 429Sqn. To 432Sqn.
HE689 NA-X	
HE703	From 424Sqn. To 27 OTU.
HE727 NA-K	FTR Dortmund 4/5.5.43.
HE728 NA-B	FTR from mining sortie 28/29.4.43.
HE738 NA-L	From 424Sqn. To 30 OTU.
HE750	To 82 OTU.

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HE751	To 20 OTU.
HE864 NA-D	From 424Sqn. FTR Dortmund 4/5.5.43.
HE873	From 432Sqn. To 27 OTU.
HE899 NA-B	From 424Sqn. FTR from mining sortie 21/22.5.43.
HE911	To 432Sqn.
HE917	To 30 OTU.
HE918	To 432Sqn.
HE981	To 429Sqn.
HF495	To 429Sqn.
HF571	To 432Sqn.
HF600	To 429Sqn.
HZ365 NA-U	FTR Duisburg 26/27.4.43.
HZ367	To 20 OTU.
HZ476 NA-A	FTR Düsseldorf 25/26.5.43.
HZ485 NA-G	FTR Essen 27/28.5.43.
JA112	To 82 OTU.
LN424 NA-E	FTR Wuppertal 29/30.5.43.
LN481 NA-N	
MS481 NA-Q	From 424Sqn. FTR Essen 27/28.5.43.

HALIFAX. **From June 1943 to June 1944.**

DG363	From 427Sqn via 1664CU.
DK196 NA-Z	FTR Munich 6/7.9.43.
DK228 NA-D	FTR Aachen 13/14.7.43.
DK229 NA-W	FTR Gelsenkirchen 9/10.7.43.
DK230 NA-V	FTR Peenemünde 17/18.8.43.
DK233 NA-X	FTR Berlin 31.8/1.9.43.
DK235	To 1659CU.
DK237 NA-L	FTR Magdeburg 21/22.1.44.
DK238 NA-I	FTR Peenemünde 17/18.8.43.
DK239 NA-Q	FTR Hamburg 29/30.7.43.
DK249 NA-K	FTR Berlin 31.8/1.9.43.
DK252 NA-O	Crash-landed at Ludford Magna on return from Hanover 27/28.9.43.
DK257 NA-Q	FTR Aachen 13/14.7.43.
DK267 NA-H	FTR Berlin 23/24.8.43.
DK270 NA-U	Crashed while landing at Framlingham on return from Hanover 28.9.43.
DK271 NA-Q	FTR Mannheim 23/24.9.43.
EB205	To 431Sqn.
EB206	To 1664CU.
EB207 NA-B	FTR Mannheim 23/24.9.43.
EB209 NA-C	FTR Aachen 13/14.7.43.
EB210 NA-E	Damaged beyond repair during operation to Kassel 3/4.10.43.
EB211 NA-F	FTR Peenemünde 17/18.8.43.

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EB212 NA-U	FTR Hamburg 2/3.8.43.
EB213 NA-G	FTR Kassel 3/4.10.43.
EB214 NA-S	FTR Kassel 3/4.10.43.
EB215 NA-T	FTR Hanover 27/28.9.43.
EB216 NA-R	FTR Nuremberg 27/28.8.43.
EB252 NA-P	FTR Frankfurt 20/21.12.43.
EB274 NA-H	FTR Hamburg 2/3.8.43.
EB275	To 431Sqn.
HR802	From 35Sqn. To 1659CU.
HR855	From 35Sqn. To 1666CU.
HR857	From 35Sqn. To 1659CU.
HR916	From 35Sqn. To 1659CU.
HR925	From 419Sqn. To 1666CU.
HR988	From 405Sqn. To 1666CU.
HX147	From 35Sqn. To 1666CU.
HX183	
JB968 NA-R	From 429Sqn. FTR Hanover 27/28.9.43.
JD271 NA-M	From 429Sqn. FTR Leipzig 19/20.2.44.
JD274	From 429Sqn. To 1666CU.
JD278	From 429Sqn. To 1662CU.
JD386	From 429Sqn. Returned to 429Sqn. From 429Sqn.To 1666CU.
JN953	From 419Sqn. Force-landed in Yorkshire while training 12.6.44.
JN954	From 35Sqn. To 419Sqn.
JN955	From 35Sqn. SOC 22.2.45.
JN966 NA-V	Collided with Lancaster ED417 (103Sqn) on return from Stuttgart, and crashed near Middleton-St-George 27.11.43.
JN967 NA-X	To 1662CU.
JN968 NA-I	To 1664CU.
JN969	To 1666CU.
JN971	To 1659CU.
JN973 NA-U	FTR from mining sortie 17/18.4.44.
JP113 NA-A	Crash-landed at Attlebridge on return from Lens 21.4.44.
JP122	From 35Sqn. To 1664CU.
JP124	From 35Sqn. To 1662CU.
JP127 NA-T	To 1659CU.
JP130	From 419Sqn. To 1664CU.
JP132	To 1659CU.
JP191 NA-B	To 1664CU.
JP192	To 1652CU.
JP195	
JP197	To 1664CU.
JP198	To 1664CU.
JP199 NA-O	Abandoned over Berkshire on return from a mining sortie 21.4.44.
JP201	From 419Sqn. To 1666CU.
JP203	From 419Sqn. To 1664CU.

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JP204	From 419Sqn. To 1664CU.
LK635 NA-H	FTR Hanover 22/23.9.43.
LK661	To 429Sqn.
LK662	To 429Sqn.
LK680	To 434Sqn.
LK739 NA-P	From 434Sqn. FTR Berlin 20/21.1.44.
LK901	To 1662CU.
LK906 NA-D	FTR Berlin 22/23.11.43.
LK908 NA-I	Damaged beyond repair during operation to Kassel 22/23.10.43.
LK913 NA-N	FTR Montlucon 15/16.9.43.
LK914 NA-K	FTR Hanover 22/23.9.43.
LK915 NA-V	FTR Hanover 27/28.9.43.
LK924	To 429Sqn.
LK927	To 431Sqn.
LK928 NA-B	FTR Frankfurt 20/21.12.43.
LK930	To 429Sqn.
LK931 NA-W	FTR Frankfurt 4/5.10.43.
LK947	To 429Sqn.
LK950 NA-T	Abandoned over Kent on return from Leverkusen 19.11.43.
LK952	To 431Sqn.
LK953	To 434Sqn.
LK954 NA-E	Crashed in Lincolnshire on return from Düsseldorf 3.11.43.
LK956 NA-S	FTR Leverkusen 19/20.11.43.
LK959	To 427Sqn.
LK969 NA-G	FTR Frankfurt 25/26.11.43.
LL180	From 431Sqn. Returned to 431Sqn.
LW279	From 429Sqn. To 419Sqn.
LW285 NA-Z	From 429Sqn. FTR from mining sortie 23/24.4.44.
LW323	To 35Sqn.
LW325	From 419Sqn. To 1666CU.
LW326	To 35Sqn.
LW327	To 419Sqn.

LANCASTER.	**From June 1944.**
KB704 NA-E/X	From 419Sqn. Crashed while landing at Middleton-St-George 11.5.44.
KB705 NA-F	From rolls Royce. To 1664CU.
KB709 NA-G	FTR Stettin 29/30.8.44.
KB725 NA-L	Crashed in County Durham after returning early from Wiesbaden 3.2.45.
KB737 NA-R	FTR Essen 25.10.44.
KB739 NA-W	
KB740 NA-V	Crash-landed at Woodbridge on return from Stuttgart 25.7.44.
KB741	To 431Sqn.
KB742 NA-M	Crashed on landing at Middleton-St-George on return from Bochum

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	4.11.44.
KB743 NA-I	FTR Bremen 18/19.8.44.
KB744 NA-J	
KB747 NA-X	
KB749 NA-A	FTR Soesterberg 15.8.44.
KB751 NA-Q	FTR Stettin 16/17.8.44.
KB756 NA-Q	FTR Villeneuve-St-Georges 4/5.7.44.
KB757 NA-C	
KB758 NA-Z	FTR Brunswick 12/13.8.44.
KB759 NA-K	FTR Hamburg 28/29.7.44.
KB760 NA-P	
KB763 NA-S	Crashed in County Durham while training 28.1.45.
KB764 NA-B	
KB766 NA-O	Abandoned over France when bound for Hagen 2.12.44.
KB768 NA-E	Collided with 426Sqn Halifax LW200 over Warwickshire on return from Soest and crashed 5/6.12.44.
KB770 NA-D	FTR Stuttgart 28/29.1.45.
KB771	
KB773	To 431Sqn.
KB777 NA-V	FTR Hildesheim 22.3.45.
KB778 NA-Y	Crashed in Belgium on return from Chemnitz 5.3.45.
KB780 NA-T	FTR Duisburg 14.10.44.
KB781 NA-U	
KB782 NA-H	FTR Düsseldorf 2/3.11.44.
KB783	From A&AEE. To 419Sqn.
KB784 NA-K	FTR Kiel 13/14.4.45.
KB789	To 434Sqn.
KB791 NA-A/W	
KB792 NA-I	FTR Wiesbaden 2/3.2.45.
KB793 NA-E	Crashed in County Durham while training 13.1.45.
KB794 NA-W	
KB795 NA-Q	Crashed on landing Middleton-St-George during training 7.4.45.
KB798 NA-G	FTR Opladen 27/28.12.44.
KB801	To 431Sqn.
KB803	To 431Sqn.
KB806	To 431Sqn.
KB808	To 431Sqn.
KB813	To 431Sqn.
KB814	To 434Sqn.
KB816 NA-E	From 434Sqn. Crashed on landing at Church Broughton 14.4.45.
KB820 NA-N/T/M	
KB822	To 431Sqn.
KB823	To 431Sqn.
KB825	To 434Sqn.
KB826	To 434Sqn.

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KB829	To 434Sqn.
KB838 NA-O	
KB840	To 434Sqn.
KB842	To 434Sqn.
KB843 NA-D	From 434Sqn.
KB846 NA-I	From 434Sqn. FTR Hagen 15/16.3.45.
KB848 NA-G	
KB850 NA-O	From 434Sqn.
KB851	To 419Sqn.
KB855 NA-F	From 419Sqn. Crashed on approach to Middleton-St-George while training 20.2.45.
KB864 NA-S	
KB867 NA-L	
KB876	
KB878	From 419Sqn.
KB879 NA-Y	Crashed in Staffordshire while training 30.4.45.
KB882 NA-R	
KB888	To 419Sqn.
KB889	
KB891 NA-F	
KB895	To 434Sqn.
KB898	
KB899 NA-V	
KB900	To 431Sqn.
KB908	From 431Sqn.
KB910	
KB920 NA-K	From 434Sqn.

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SECTION 4

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KEY TO ABBREVIATIONS

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KEY TO ABBREVIATIONS

A&AEE	Aeroplane and Armaments Experimental Establishment.
AA	Anti-Aircraft fire.
AACU	Anti-Aircraft Cooperation Unit.
AAS	Air Armament School.
AASF	Advance Air Striking Force.
AAU	Aircraft Assembly Unit.
ACM	Air Chief Marshal.
ACSEA	Air Command South-East Asia.
AFDU	Air Fighting Development Unit.
AFEE	Airborne Forces Experimental Unit.
AFTDU	Airborne Forces Tactical Development Unit.
AGS	Air Gunners School.
AMDP	Air Members for Development and Production.
AOC	Air Officer Commanding.
AOS	Air Observers School.
ASRTU	Air-Sea Rescue Training Unit.
ATTDU	Air Transport Tactical Development Unit.
AVM	Air Vice-Marshal.
BAT	Beam Approach Training.
BCBS	Bomber Command Bombing School.
BCDU	Bomber Command Development Unit.
BCFU	Bomber Command Film Unit.
BCIS	Bomber Command Instructors School.
BDU	Bombing Development Unit.
BSTU	Bomber Support Training Unit.
CF	Conversion Flight.
CFS	Central Flying School.
CGS	Central Gunnery School.
C-in-C	Commander in Chief.
CNS	Central Navigation School.
CO	Commanding Officer.
CRD	Controller of Research and Development.
CU	Conversion Unit.
DGRD	Director General for Research and Development.
EAAS	Empire Air Armament School.
EANS	Empire Air Navigation School.
ECDU	Electronic Countermeasures Development Unit.
ECFS	Empire Central Flying School.
ETPS	Empire Test Pilots School.

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F/L	Flight Lieutenant.
Flt	Flight.
F/O	Flying Officer.
FPP	Ferry Pilots School.
F/S	Flight Sergeant.
FTR	Failed to Return.
FTU	Ferry Training Unit.
G/C	Group Captain.
Gp	Group.
HCU	Heavy Conversion Unit.
HGCU	Heavy Glider Conversion Unit.
LFS	Lancaster Finishing School.
MAC	Mediterranean Air Command.
MTU	Mosquito Training Unit.
MU	Maintenance Unit.
NTU	Navigation Training Unit.
OADU	Overseas Aircraft Delivery Unit.
OAPU	Overseas Aircraft Preparation Unit.
OTU	Operational Training Unit.
P/O	Pilot Officer.
PTS	Parachute Training School.
RAE	Royal Aircraft Establishment.
SGR	School of General Reconnaissance.
Sgt	Sergeant.
SHAEF	Supreme Headquarters Allied Expeditionary Force.
SIU	Signals Intelligence Unit.
S/L	Squadron Leader.
SOC	Struck off Charge.
SOE	Special Operations Executive.
Sqn	Squadron.
TF	Training Flight.
TFU	Telecommunications Flying Unit.
W/C	Wing Commander.
Wg	Wing.
WIDU	Wireless Intelligence Development Unit.
W/O	Warrant Officer.

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SECTION 5

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SOURCES OF INFORMATION

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SECTION 6

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STOCK LIST

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