

**ROYAL AIR FORCE
BOMBER COMMAND**

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**SQUADRON PROFILES
NUMBER 97**



**433 (PORCUPINE) SQUADRON
ROYAL CANADIAN AIR FORCE**
Qui s'y frotte s'y pique

**RESEARCHED, COMPILED AND WRITTEN
BY
CHRIS WARD**

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BOMBER COMMAND
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433 SQUADRON



by

Chris Ward

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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. Nevertheless, 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



BRIEF HISTORY

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433 (PORCUPINE) SQUADRON

MOTTO *Qui s'y frotte, s'y pique.* (Who opposes it gets hurt.)

Code BM

Formed at Skipton-on-Swale in Yorkshire on the 25th of September 1943, 433 Squadron was part of the build up of the all Canadian 6 Group, which had been officially in existence since the 1st of January 1943. 6 Group was the culmination of more than three years of negotiations between representatives of the British and Canadian governments concerning the formation of Canadian squadrons overseas under Article XV of the British Commonwealth Air Training Plan. The BCATP, or the Empire Air Training Scheme, as it is still better known in Britain, originally called for the formation of twenty five RCAF squadrons, but this was modified as the discussions ran into difficulties and became more acrimonious. From the very outset in October 1939, the two sides approached the talks with different perceptions and goals, and the Canadian negotiators found themselves constantly out-manoeuvred by their British counterparts. The Canadian intention, in the mind of Prime Minister William King, was to create and finance an entirely independent air force to operate alongside the RAF, much as the American 8th Air Force would from 1942, and to contribute \$350 million for the privilege. The British, on the other hand, wanted manpower to swell the RAF ranks, while still expecting Canada to foot the bill. Canada, quite understandably, was not prepared to finance Canadian airmen over whom it had no control, and such an arrangement, anyway, would not satisfy its desire to establish itself as an emerging major nation in its own right. Ultimately, Canada compromised on almost every aspect of its original plan, and agreed to finance a Canadian Group within RAF Bomber Command. In the meantime, until enough Canadian squadrons existed to constitute a Group, it was agreed that RCAF squadrons would be located in a single RAF Group on stations in close proximity to one-another.

The first RCAF squadron, 405, had been formed back in April 1941, followed two months later by 408 Squadron, and by the end of 1942 eleven squadrons were in existence. With the exception of 405 Squadron, which was halfway through a period of detachment to Coastal Command, they were at this stage all part of 4 Group. Not all would immediately be posted to 6 Group on the 1st of January, however, and 405 Squadron would join the Pathfinders within a month of returning to Bomber Command in March. Bomber Command's commander-in-chief, ACM Sir Arthur Harris, was not kindly disposed to the formation of a Canadian Group, although he had a high regard for Canadians as airmen. He was not overly enamoured of their lax attitude towards discipline, or of their lack of appreciation for RAF etiquette, but as AOC 5 Group until November 1940, he had first hand experience of their magnificent contribution to the war effort in RAF squadrons thus far. Of greater significance for 6 Group's status within Bomber Command was Harris's dislike for the RCAF's C-in-C overseas, Air Marshal Gus Edwards, and the Group's AOC, AVM Brook, both of whom were British by birth. To cap it all, the Canadians were demanding Lancasters, and Harris was not about to hand them over, while a number of RAF Groups were still in the process of converting to the type. The Royal Australian Air Force units, on the other hand, were in RAF Groups, and were mostly equipped with Lancasters. It was never going to be easy for the fledgling Group to establish itself in the early days, and it would endure a tough first year, characterized by a poor serviceability rate and a higher than average number of early returns. During January, an

average 64% of the Group's aircraft were available for operations, and this fell to 59% in February. There would be an equally alarming loss rate, although this would not be in evidence until the year's major campaigns were under way. The weather during 6 Group's first month of operations was appalling, and much to Harris's annoyance, yet another maritime diversion from the strategic offensive had him devoting much of his effort to the destruction of French ports harbouring U-Boats.

1943 would, all things considered, be a successful year for the Command, and it is useful to look back over the significant events. The first major campaign of the year against Germany's industrial heartland, the Ruhr, had produced devastating assaults on all of the important towns and cities within it. Begun at Essen on the night of the 5/6th of March, it was a campaign lasting almost five months, and owed its outstanding success to the advent of Oboe. This was the electronic blind bombing device developed to overcome the problems of target location through cloud and industrial haze. The constant presence of one or both of these obstacles had hitherto protected the Ruhr, and prevented the Command from inflicting a telling blow. Installed in the Mosquitos of 109 Squadron of the Pathfinder Force, the device underwent exhaustive trials during the final third of 1942, and by the spring of 1943, was close to being fully effective. Brought to bear against the Ruhr, it enabled the targets to be marked with precision, and the industrial giants of Essen, Duisburg, Dortmund and Düsseldorf, as well as the likes of Bochum, Krefeld, Mülheim, Wuppertal, Oberhausen and Remscheid all wilted under an unprecedented rain of accurately aimed bombs. As was to be expected, the enemy's defence of this vitally important region was fierce, and the highly organised and efficient flak and nightfighter units exacted a grievously high toll of Bomber Command aircraft and crews. The Ruhr quickly assumed a fearsome reputation, and its "Happy Valley" appellation was justifiably earned. By the middle of July, Harris was able to look back on a highly satisfactory campaign in which Oboe had been the decisive factor. Despite the horrendous losses, the aircraft factories were more than keeping pace with the rate of attrition, and eager new crews were flooding in from the Empire Training Schools around the world.

Also at this time, 6 Group was attracting attention as the "chop" Group, having sustained consistently higher losses than the RAF Groups during the Ruhr offensive. The percentage loss rate had increased in successive months from 5.1 in April to 7.1 in June, and this at a time when 5% over a three month period was considered to be unsustainable in terms of maintaining an effective unit. This was not the only source of concern, however, as early returns were also consistently the highest in the Command, while the serviceability rate was the lowest. The Operational Research Section at Bomber Command HQ carried out a comparison with 4 Group over the same period, as it was equipped with the identical aircraft types and was located in the same general region of northern England. The conclusions drawn from the investigation pointed to a lack of experience throughout 6 Group from the top downwards. There had been many changes, which had taken experienced men away from the Group at a time when men of comparable experience did not exist to replace them. 405 Squadron, the senior Canadian unit, had joined the Pathfinders after only six weeks with 6 Group, and 420, 424 and 425 Squadrons were sent to the Middle East soon afterwards. 429 Squadron moved over from 4 Group, and 432 and 434 Squadrons were formed, but seasoned campaigners had to be taken from existing squadrons to bolster them, leaving their former

units correspondingly weaker. The RAF Groups had been in existence for years, there was sufficient experience within them to absorb the losses and continue without a perceptible reduction in efficiency and morale. Not so with 6 Group, which had been pushed into action too soon, and had little to fall back on. The very same problem would afflict the Pathfinder Force during the winter campaign of 1943/44, when many of its most experienced crews were lost, and had to be replaced with “promising” crews with only a few operations behind them, or even others straight from training units. The result was a drop in Pathfinder performance and morale, which reached its lowest point in January 1944, and threatened the very existence of the force. Sideways postings and a change in tactics saved the day, and in time, similar measures would have the desired effect within 6 Group.

Having dealt, for the time being at least, with the Ruhr, Harris turned his attention upon Hamburg, Germany's Second City, which he intended to raze to the ground in a short, sharp series of attacks under the apt codename Operation Gomorrah. In each year of the war to date the Command had raided Hamburg during the final week of July, and it was this period in which Harris elected to launch Gomorrah. As Oboe had been introduced to main force operations at the start of the Ruhr offensive, so was another new device made ready for the first raid in the Battle of Hamburg, and it was to prove equally effective in its way. “Window”, tinfoil-backed strips of paper, was to be released into the air stream in vast quantities to form giant clouds, which drifted slowly to earth, swamping the enemy nightfighter, searchlight and gun-laying radar with false returns. The device had been available for a year, but its use had been vetoed, in case the enemy copied it for deployment against Britain. The German scientists had, in fact, already developed their own version called Düppel, which they too had been forced to withhold for the same reason. The efficacy of Window was apparent from the first operation on the night of the 24/25th, when a modest twelve aircraft were lost from the almost eight hundred taking part. Hamburg suffered a heavy blow, in which fifteen hundred of its inhabitants lost their lives, although this was only a prelude to what lay in store three nights later. On the 27/28th, the first recorded example of the meteorological phenomenon known as a “firestorm” erupted in the densely populated working class residential districts of Hamm, Hammerbrook and Borgfeld, two miles east of the city centre. The individual fires joined together to form a giant conflagration, which sucked in oxygen from surrounding districts to feed its voracious appetite. Such was the power of the resulting hurricane-force wind, that trees were uprooted, and flung bodily into the flames, along with debris and people. Temperatures at the heart of the inferno exceeded a thousand degrees Celcius, and it only subsided when there was nothing left of a combustible nature. At least forty thousand people died on this one night alone, and the following morning brought the first trickle of an exodus, which would see 1.2 million people evacuate the stricken city. Two nights later, a third raid added to the misery, and the Americans also joined in with two daylight attacks. The campaign concluded on the night of the 2/3rd of August, when violent weather conditions saved Hamburg from a further pounding, but the damage had already been done.

Much of the second week of August was devoted to operations against the major cities of Italy, which was now teetering on the brink of capitulation. Bomber Command was invited to help nudge it over the brink, and the less demanding trips across the Alps brought a welcome

respite from Germany, where the defenders were beginning to recover from the body blow of Window. The final Bomber Command attack of the war against Italy was delivered on Turin by elements of 3 and 8 Groups on the 16/17th, and this was followed twenty four hours later by one of the most important raids of the entire war on Germany. The secret weapons research and development establishment at Peenemünde, on the island of Usedom on the Baltic coast, had been under surveillance for some time, and photographic reconnaissance in June had produced pictures of a V-2 rocket. The complex operation was undertaken by 596 aircraft under the control of a Master Bomber, Group Captain John Searby of 83 Squadron, and was sufficiently successful to set back the secret weapons programme by a number of weeks. Ultimately, it forced the testing of the V-2 to be withdrawn eastwards into Poland, and the manufacturing of secret weapons to continue underground at Nordhausen. Harris had long believed that Berlin, as the seat and symbol of Nazi power, held the key to ultimate victory, and that its destruction would herald an uprising by the German populace demanding an end to a war, which had now turned against them. Party propaganda and a tight control would never allow this to happen of course, but Harris embarked on the first phase of his campaign against the Capital on the 23/24th. A moderately effective operation was marred by the loss of a new record of fifty six aircraft, and two further raids on the last night of August and the 3/4th of September also resulted in a bloody nose for a less than satisfactory return. Harris called a halt at this point, and spent the remainder of the late summer and early autumn attacking other German cities, principally Mannheim, Hanover, Munich, Kassel, Frankfurt, Stuttgart and Düsseldorf.

This then, was the situation into which 433 Squadron was born as the last Canadian bomber squadron to be formed overseas. 415 Squadron would be the final addition to 6 Group in July 1944, but it had been in existence as a torpedo unit since before 433 Squadron's formation. The squadron's nucleus consisted of 5 crews who had reputedly been removed from other squadrons because of some kind of disciplinary problems. Initially, as the squadron began what would be an unusually protracted working up period, it stoged around in borrowed Wellingtons, until finally getting its hands on Halifaxes, the first of which, HX268, was taken on charge on the 3rd of November. This was the day on which Harris wrote to Churchill, stating 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." He also mentioned promised USAAF help in this matter, but vowed not to wait indefinitely. Harris still believed that the war could be won by bombing alone, and that this was infinitely preferable to the kind of bloody and protracted land campaigns, which he had personally witnessed during the Great War. The Americans, of course, were committed to victory by land invasion, and there was never the slightest chance of enlisting their support for a campaign against Berlin. Undaunted as always, Harris would go to Germany's Capital alone, and spent the first half of November preparing for the battle.

Under the watchful eye of its first commanding officer, W/C Sinton, who took up his appointment on the 9th of November, 433 Squadron continued with its training programme, and doubled its complement of Halifaxes on the 10th, when HX272 arrived. 433 Squadron was, in fact, the second squadron in Bomber Command to equip with the new improved Hercules powered Mk III version of the type, just nine days after 466 Squadron Royal

Australian Air Force received its first batch, and by the end of the month twenty were on charge. There were plenty of Canadians in the RAF, but W/C Sinton was something of an oddity, in being a Briton in the RCAF. He commanded a predominately Canadian outfit, but as in all squadrons, there was a healthy mixture of nationalities, and flight engineers particularly tended to be British. There can have been no tougher time to be contemplating entry into the bomber war than the winter of 1943/44, and it would be a testing time indeed for those many crews embarking on their first tour of operations. During the course of the month, 420, 424 and 425 Squadrons returned from the Middle East, and 424 Squadron joined 433 at Skipton-on-Swale, where it exchanged its Wellingtons for Halifaxes. Harris resumed his Berlin offensive on the night of the 18/19th November, and as 433 Squadron would be available to participate in the second half, it is worth looking at in greater detail. Over four hundred Pathfinder and main force Lancasters were detailed for this operation, while a diversionary raid was laid on to the twin cities of Mannheim and Ludwigshafen involving almost another four hundred Halifaxes, Stirlings and Lancasters drawn from 3, 4, 6 and 8 Groups. This was an attempt to split the defences, or at least to confuse the enemy nightfighter controller and buy time to reach the target unmolested. 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. Particularly satisfying was the complete absence of casualties among 6 Group squadrons.

Round two of the resumed offensive came on the 22/23rd, when 764 aircraft took off once more for the Capital. The 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. The bomber casualties amounted to twenty-six aircraft, a modest four of which were from 6 Group, although 10% of its aircraft had returned early. The Stirling brigade lost 10% of its fifty participants, and Harris called a halt to the career of this tormented bomber over Germany. From now on it would be relegated to useful but secondary duties over the occupied countries and the sea, and would find itself increasingly employed on behalf of the Special Operations Executive. 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. 6 Group contributed nineteen Mk II Lancasters, three of which returned early and one from 408 Squadron was among the missing.

After a three night break for the Lancaster crews, during which the Halifax brigade carried out a scattered raid on Frankfurt, an all Lancaster heavy force was prepared for the fourth trip to Berlin since the campaign's resumption. Over four hundred aircraft were involved, including thirty nine from 6 Group, and they set a course over northern France accompanied by a Halifax diversionary force containing fifty six 6 Group aircraft, which peeled off for Stuttgart as 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, below lay industrial districts, and thirty-eight war industry factories were completely destroyed. The bomber stream became scattered as it withdrew from the target area, and nightfighters were able to pick up individual Lancasters during the return flight. Twenty eight failed to return home, of which three were from 6 Group, while a further fourteen were written off in crashes in England.

December began as November had ended, with an all Lancaster main force rejoining the long and rocky road to Berlin on the night of the 2/3rd. Fog forming late in the day around 6 Group's airfields was a discouraging factor, as were the icing conditions encountered during the outward flight. This persuaded many of the 440 strong heavy contingent to return early, and eight of 6 Group's thirty five participants did so, a massive 22%, demonstrating that the Group had not yet solved its "boomerang" problem. Support was provided by eighteen Pathfinder Mosquitos laying route markers, but in the event, wrongly forecast winds led to a scattering of the bomber stream throughout the operation, 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 worst against Berlin since the opening two raids of the offensive back in August. Forty aircraft were missing, although 6 Group bucked the trend by losing only two. 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 nightfighter 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 nightfighters. 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, seven of them from 6 Group.

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 of the Ruhr towns and cities. 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. Of these, forty were launched from 6 Group stations, four or 10% returning early. The enemy nightfighter controller was becoming accustomed to the direct route across Holland adopted by the bombers, and was able to start infiltrating his nightfighters 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, the least reliable method of target marking, 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 nightfighters, but many crews, particularly those 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 fog, and few, if any, had sufficient reserves of fuel to divert to other areas. The minutes between midnight and 02.00 saw a 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 cruelest of circumstances, and around 150 airmen lost their lives when so close to home and safety. 6 Group lost four aircraft to the enemy defences and four more to the conditions at home, but at least the survivors could spend the following three nights on the ground. It was not uncommon for squadrons to lose crews during the training period before becoming operational, and 433 Squadron sustained its first casualties in this way. Shortly before noon on the 19th, F/S Humphreys began his take-off run in HX245 with four members of his crew on board. Within seconds of becoming airborne, and while still within the confines of the airfield, the aircraft rolled onto its back and crashed onto a parked Halifax, HX277, in which a number of ground crew were working. All five aircrew were killed, along with one of the fitters, but remarkably, three others emerged alive from the parked aircraft, one of them completely uninjured.

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 nightfighter 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' marking, and decoy fires and markers on the ground lured some of the bombing away from the city. The creep-back from this fell onto the city, however, and over four hundred houses were destroyed, while almost two thousand other buildings in Frankfurt 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. 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 nightfighters. 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, and sixteen Lancasters failed to return home. 6 Group sat this one out, and was able to begin celebrating Christmas a day earlier than most.

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 nightfighter controller guessing, and few nightfighters 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, five of which were from 6 Group. This represented 3.8% of the 129 dispatched by the Group, while the overall loss to the Command was a more modest 2.8%. Fifteen early returns, or 11.6%, demonstrated that the Canadians still hadn't got this problem licked. As the old year slipped away, 433 Squadron was declared ready for operations with a complement of twenty Halifaxes, forty-nine officers and 473 airmen. Some Squadron members had already tasted battle conditions in the Halifax by flying as spare bods in 427 Squadron aircraft, and this would stand them in good stead for what lay ahead. They would carry the name Porcupine into battle, the squadron having been adopted by the Porcupine district of northern Ontario, and the badge and motto, authorized by King George VI after the war, would reflect this.

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, as already mentioned, had been withdrawn from operations over Germany altogether following a period of sustained heavy losses. The effect of the campaign was also being felt by the inhabitants of Berlin, who had witnessed the destruction of 25% of the 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 immediate future, 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 turned out, this was precisely how long both beleaguered camps would have to wait until 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, and around sixteen others fell victim to nightfighters 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, many of them carrying highly experienced Pathfinder crews. It had not been a bad night for 6 Group, however, which recorded only two early returns and no losses. 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. As it snowed outside, they pondered the prospect of another midnight take-off, and the fact that no diversionary measures were planned. This was of little concern to four crews under briefing at Skipton-on-Swale, as 433 Squadron prepared for its operational baptism, a mining operation around the Frisians. This was the accepted way of introducing a new squadron to the rigours of operations, and indeed, freshman crews would normally expect to undertake a "gardening" sortie or two before venturing over Germany. Shortly after 20.30 hours, four Halifaxes took off and headed for the target area, although one of them was soon back in the circuit, forced to return early with technical problems. The others pressed on to complete the squadron's first operation and all returned safely. They arrived back home as the main event was getting under way, 362 Lancasters taking off for Berlin either side of midnight, along with nine Halifaxes and a dozen Mosquitos. The route was again straight-in over Holland, with a dog leg south-east of Bremen to bring the bomber stream to a position north-west of Berlin for the final approach, 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 returning early, 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 circumstances. The enemy nightfighters 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. 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.

A frustrating period followed for 6 Group, whose Halifax crews were not involved in the next major operation on the night of the 5/6th. The target was Stettin, at the eastern end of Germany's Baltic coast, and despite its distance from the bomber stations, it always fell victim to accurate and concentrated raids, never once emerging from a Bomber Command assault with minor damage, as did many other German cities from time to time. Ten Pathfinder Halifaxes from 35 Squadron accompanied almost 350 Lancasters in another very late take-off. A mosquito diversion at Berlin played its part in keeping the main operation largely free of nightfighters, and 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. Sixteen aircraft failed to return home, but 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. The weather, as always during January, was cold, damp, foggy, and for the Canadians, very depressing. "Is this all that the weather has to offer in this God-forsaken country", was the frequently asked question on 6 Group stations, as the crews attended briefings and put themselves through the stomach-churning rituals of preparation, only to be told that the operation was scrubbed. Sometimes they might even be in their aircraft when the scrub came, and it would be too late to take advantage of a night off. Many crews found scrubs to be more emotionally draining than operations themselves, and didn't view them as a reprieve. Having gone through the strain of preparation, which was generally considered to be the worst part of an operation, they would have preferred to go, and at least chalk off another sortie towards the end of their tour.

When the 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 Brunswick rather than Berlin as the target for the night. Situated about fifty miles beyond Hanover, a city, which had proved 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, and including Mk IIs from 6 Group, 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 nightfighters, 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 to the tune of eleven aircraft, and 156 Squadron's disastrous start to the year continued with the loss of another five aircraft and crews.

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. This was to be only 433 Squadron's second operation, its first carrying bombs, and its first foray over Germany. Eight Porcupine Halifaxes lined up for take-off at Skipton-on-Swale in the late afternoon, led by W/C Sinton, although two of them would return early. The first of these contained the crew of W/O James, who were thwarted by the refusal of the undercarriage to retract. 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 nightfighter controller. It was at this point, that a malfunctioning overload pump persuaded F/L Wolton to give up hope of reaching the "Big City". At 18.45 the bomb-aimer deposited the bomb load on Kiel, thus bestowing upon this crew the honour of being the first from 433 Squadron to bomb Germany. It was shortly after this momentous event that the nightfighters 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 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. The six 433 Squadron crews reaching Berlin all returned safely, but nine other 6 Group aircraft were among the absentees, on a night when the Group also registered an 11.8% rate of early returns.

There was no time to dwell on these statistics, as preparations were already in hand for another long-range, large-scale operation on the following night. Like Brunswick, Magdeburg had never been raided in numbers before, and on this night it would face the remains of a force of 648 aircraft, after early returns and casualties had taken their toll. The 433 Squadron element joined the rest of the force in departing their stations either side of 20.00 hours, an event, which did not go unnoticed by the enemy nightfighter controller. He 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. The Pathfinders were not able to recover the situation, and the attack lacked accuracy and concentration, falling predominately outside of the city. A massive fifty-seven aircraft failed to return, the majority of them victims of nightfighters, and this represented a new record high casualty figure. It was the Halifax squadrons, which once more sustained the heavier losses, amounting to thirty five aircraft, and 433 Squadron experienced for the first time the sad task of posting missing some of its own young men. HX283 was shot down over Germany, it is believed in the target area, and there were no survivors from the crew of F/L Jira. It was the crew's first operation together, the pilot having previously undertaken a second dicky trip with 427 Squadron. A message was received from F/S Wilson and crew in HX289, to the effect that they were ditching in the North Sea some fifty miles off the coast. A sea search was carried out on the following day, but no trace of the Halifax or its occupants was ever found.

The squadrons were given a five night rest in which 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 nightfighter 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, thirty-three Lancasters falling victim to the defences, most of them to nightfighters arriving on the scene as the raid was in progress. Halifaxes, ten of which were from 433 Squadron, joined the Lancasters on the following night to make up a force of 677 aircraft, which took off around midnight bound for Denmark, in order to approach the Capital from the north-west. Mosquitos bombed Berlin earlier in the evening, in the hope that this would persuade the nightfighter controller that the main force was heading elsewhere. It was a round flight of less than four hours for a Mosquito, and at least one 627 Squadron crew was back at Oakington in time to wish his heavy-weight 7 Squadron colleagues a good trip. Other extensive diversionary operations were mounted, and although the outward flight was relatively free of nightfighter encounters, a hot reception awaited the bombers over the target. Single and twin

engine fighters accounted for twenty seven aircraft here, but 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, and there were three absentees from the 433 Squadron site at Skipton-on-Swale. Fortunately, this was not quite the disaster it appeared, as all three had been accounted for, although not all of the twenty-one crewmen would survive their experience. HX265 was hit by flak as it crossed the enemy coast outbound, and a fuel tank was ruptured. Despite the likelihood of insufficient fuel to complete the round trip, F/O Gray opted to press on and bomb Berlin, a brave decision for a crew on its first operation together. The fuel ran out as the Halifax was over the North Sea on the way home, and Gray skillfully put it down onto the water some twenty-five miles off the Northumberland coast. All seven men gained the relative safety of the dinghy, and were rescued within three hours, Gray to receive an immediate award of the DFC, the squadron's first decoration. HX281 arrived back over Yorkshire on fumes, and displaying the evidence of an encounter with a nightfighter during the outward flight, which had resulted in severe damage to the starboard rudder and a holed fuel tank. Despite these inconveniences, F/S Mitchell pressed on to the target and bombed as briefed, but had insufficient fuel left to attempt a landing. He and five of his crew abandoned the Halifax successfully, but the rear gunner, F/O Cox, opened his parachute too early, snagging it on the aircraft, and he was dragged down with it to his death. Finally, HX285 struck trees and crashed while in the circuit of Catfoss airfield, and the pilot, F/S Stiles, was killed on only his second operation, his colleagues all emerging from the wreckage unscathed or with minor injuries.

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 predominately Lancaster force, with eighty two Mk III Halifaxes for company, the latter now a transformed aircraft with none of the vices of its predecessor, and comparable in performance with the Lancaster. Many crews actually preferred it to the Lancaster, particularly appreciating the relative ease with which it could be abandoned in an emergency. The nightfighters failed to meet the bomber stream over the North Sea, and only made contact deep into German airspace. 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, however, Berlin had 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. For the third operation running 433 Squadron registered a casualty, and this time it was LV797 which failed to return. The Halifax crashed on German soil, killing F/S Hagerman and all but his rear gunner, who fell into enemy hands. It was the crew's first operation.

There were 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, and it remained the seat of Nazi power. 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. Among the minor operations mounted during the stand-down, was a mining effort by fifty Halifaxes in the Kiel Bay area on the 2/3rd, for which 433 Squadron provided aircraft without loss. There was an early briefing for crews on every main force and Pathfinder station on the 15th, as preparations were put in hand for 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 in concert against a single target. Together with the extensive diversionary operations, which included Mosquito attacks on enemy nightfighter 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 when a few crews became airborne 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 nightfighter 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, but 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 in the central and south-western districts of the city, causing almost twelve hundred medium and large fires, 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. Forty-three aircraft failed to make it back, but the only absentee from Skipton-on-Swale was a Halifax from 424 Squadron, captained by one of its flight commanders. All of the 433 Squadron crews landed away from base, mostly in East Anglia, and W/O Nielson's Halifax was found to be displaying minor damage from flak.

The survivors were allowed three nights off before the next operation, which was to Leipzig on the 19/20th. It was to be a late take-off, around midnight, but two Porcupines crews, those of F/S Mitchell and F/S Monahan returned early with an unserviceable port-outer and overload pump respectively. Extensive diversionary operations were again laid on, but the enemy nightfighter 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. There was just one empty dispersal at Skipton-on-Swale next morning, that normally occupied by HX230. The Halifax was lost over Germany

with the crew of Sgt McKay, who all died on their fifth operation together. 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. For once, the nightfighter controller was deceived by the diversionary measures, and the bomber stream remained 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, and the 433 Squadron participants all returned safely.

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 nightfighters would be caught on the ground refueling 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, comprising 392 aircraft, took off between 18.00 and 19.00 hours, and the second wave of 342 aircraft 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 in the tactic. 433 Squadron contributed to the first phase of the operation, but F/S Smith returned early with excessively high fuel consumption, and two other Porcupine aircraft failed to return. HX269 was coned by searchlights while flying through the Frankfurt defence zone at twenty thousand feet, and it is possible that control was lost during violent evasive measures, or perhaps some structural failure occurred. Whatever the cause, F/S Fielding and his crew abandoned the Halifax to its fate, and parachuted into the hands of the enemy. LV871 also went down over Germany, and F/S Meldrum and three of his crew survived to be taken prisoner, while the bomb-aimer and both gunners lost their lives. The wireless operator, F/O Dormand DFC, was repatriated in February 1945. Five crews landed away from base, and W/O Nielson reported minor flak Damage for the second time. On the following night, the experiment continued 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 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 bombing 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, some of the bombing did eventually spread into the industrial areas in the north and east, and a number of important war industry factories were hit. Twenty-one aircraft failed to return, but this time there were no losses from the ranks of 433 Squadron.

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 predominately of Lancasters, with 129 Mk III Halifaxes in support. Dense cloud on the route to the target prevented nightfighters 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, and the Skipton-on-Swale contingent returned safely. Most of the main force Lancaster squadrons remained on the ground for the next two weeks, and it was during this period, that Halifaxes of 4 and 6 Groups, including the Mk II and Vs, took the main role in opening the Transportation Plan. This called for the systematic dismantling by bombing of the French and Belgian railway networks, to prevent their use by the Germans to bring up forces to face the invasion. Halifaxes opened the proceedings at Trappes marshalling yards on the 6/7th, after the marking had been carried out by Oboe Mosquitos. 433 Squadron's S/L McNeill was forced to return early with a failed port-outer engine, but his colleagues contributed to a successful operation. The 433 Squadron aircraft carried a full load of high explosives for the first time, rather than part incendiaries, and this helped to leave track, rolling stock and installations severely damaged. Similar success was gained at Le Mans railway yards on the following night, and both operations were concluded without loss. The Porkies took part in a second attack by 4 and 6 Groups on the Le Mans yards on the 13/14th, and this time fifteen locomotives and eight hundred wagons were destroyed, while collateral damage was inflicted upon two nearby factories.

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. Three 433 Squadron aircraft were forced to return early, that of S/L Paterson with a faulty fuel pump, and P/O Major with a failed overload pump, while F/S Thomas had his escape hatch blow off. The route along the length of France almost to the Swiss border delayed the inevitable contact with nightfighters, 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 lost, but there were no absentees from Skipton-on-Swale, although a number of 433 Squadron aircraft landed away, including P/O Brown at Middle Wallop with a dead starboard-inner. 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, although P/O Major was soon back after his Halifax refused to climb. Flying as second dicky to the experienced W/O James and his crew in HX282 was the station commander G/C Wray. Part of the enemy nightfighter 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. The loss of twenty-two aircraft was a relatively modest price to pay for the scale of the success, but among them was 433 Squadron's HX282, which was on the way home when the end came.

Heading towards Trier on the frontier with France, and south of the intended track, the Halifax was hit by flak at 22,000 feet, and began to fall out of control. Unable to rescue the situation, the pilot ordered the crew to bail out, and six of the eight men on board managed to do so successfully, and were taken prisoner. G/C Wray thus became one of the most senior RCAF officers to fall into enemy hands. Sadly, W/O James and one of his gunners failed to leave the aircraft, and perished in the crash. All Porcupine aircraft landed away from base, F/O Burns putting down at Framlingham on three engines after flak took out his port-inner. Four nights later, over eight hundred aircraft again took off for Frankfurt, and the outcome of this attack was even more devastating than the first. Although all parts of the city were afflicted, the western districts received the greatest concentration of bombs, and this half of the city was left without water, gas and electricity for an extended period. The old Frankfurt, which had developed from the Middle Ages, was now obliterated. Despite the failure of the bulk of the nightfighter force to make contact, thirty-three aircraft were missing, and one must assume that the flak batteries enjoyed a successful night. 433 Squadron sent only one representative on this operation, while the rest of the squadron participated in a large mining effort in Kiel Bay as a diversion, and all returned safely to Skipton.

The time had 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. It would also be the final raid of the war by RAF heavy bombers on the Capital, which would then be 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 in April 1945. The force of 811 aircraft for this momentous occasion included twenty-five from Skipton-on-Swale, thirteen from 433 Squadron and twelve from 424. Of these, three Porcupines and one Tiger would return early with technical problems. Those "Porkies" pressing on were the crews of; F/O Canter in HX275, F/O Van Slyck in HX292, P/O Major in HX352, W/O Bourgeault in LV840, W/O Mitchell in HX288, W/O Wright in LV911, F/S Edmondson in LW368, F/S Lossing in LV841, F/S Reinelt in HX353 and F/S Russell in HX284. The aircraft departed their respective stations either side of 19.00 hours, 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 before transmitting their findings 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 nightfighter 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 shot down bombers were credited to them.

There were three empty dispersals to contemplate at Skipton on the following morning, two of them on the 433 Squadron site. HX284 crashed north of the Ruhr and close to the German frontier with Holland, and F/S Russell was killed along with his wireless operator and a gunner. LV841 was shot down by flak south of Magdeburg on the way home, and there were no survivors from the crew of F/S Lossing. HX292 almost became another "failed to return" statistic, after straying over the Ruhr on the return journey and being hit by flak. Damage to the port outer engine, both wings, the fuselage and undercarriage presented a major control problem to F/O Van Slyck, and he gave the precautionary order to his crew to put on parachutes. Rear Gunner F/S Potentier perhaps misheard the instruction in the general confusion, and departed the Halifax while it was over Belgium. The navigator, Sgt Phillips, was seriously wounded by flak splinters, but remained at his charts to assist in the safe return of the aircraft, which was ultimately put down at the emergency landing strip at Woodbridge on the Suffolk coast. F/O Van Slyck was awarded an immediate DFC and Sgt Phillips a DFM for their part in the safe return of their badly damaged aircraft. Meanwhile, back in enemy territory, F/S Potentier would spend almost the next six months in the hands of the resistance, until contacting an American reconnaissance patrol on the 11th of September. He was the first 433 Squadron airman to successfully evade capture.

It had been an exhausting offensive against Berlin for all concerned, but the winter campaign, of which Berlin represented approximately half, still had a week to run, and two further major operations for the crews to negotiate. The first of these was directed at Essen on the 26/27th, when the sudden switch to the Ruhr probably caught the defenders by surprise. Back within range of Oboe, which had proved the decisive factor in the Ruhr offensive a year earlier, Essen 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 all from Skipton-on-Swale got back safely. The final operation of the winter offensive was to be against Nuremberg, the birthplace of Nazism, a city, which thus far, had escaped the worst ravages of a Bomber Command assault. At briefings, 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, predicting a disaster, but he was overruled.

Twenty-four Halifaxes departed Skipton-on-Swale before and around 22.00 hours, twelve from each squadron, and it was not long before the crews began to note some unusual and alarming features in the conditions. These included uncharacteristically bright moonlight, combined with crystal clear visibility, which 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 effected the Berlin raid a week earlier. On this night they blew from the south, breaking the cohesion of the bomber force, 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 the findings transmitted 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, 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 nightfighter 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 signposting the way. Eighty-two aircraft fell during the outward flight and around the target area, and together with the fifty-two early returns, this dramatically reduced the numbers available to attack the city. Among the early returns were two from 433 Squadron, while 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, which, on seeing a number of target indicators, they took to be the target. It was, in fact, Schweinfurt, some fifty miles to the north-west, and it was only on 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. The damage had been done, however, and ninety-five aircraft were lost, while others were written off in crashes at home, or with battle damage too severe to repair.

Three crews were posted missing from Skipton-on-Swale, each of them having been shot down during the outward flight. Just one of them was from 433 Squadron, HX272, which contained the eight man crew of the now commissioned "Mad Dane", P/O Nielsen, who came from New York City, and was on his twenty-seventh operation. He was one of the squadron characters, and apparently acquired his nickname during the recent Leipzig operation, when having arrived at the target too early, hopped over to Berlin to kill time. Now, as they bore down on Nuremberg on the final approach to bomb from 21,000 feet, there was an explosion in the starboard inner engine, which then erupted in flames. The fire spread to the wing, and the order to bail out was given. Before anyone had time to act, the aircraft was torn apart by an explosion, and the pilot, wireless operator and rear gunner found themselves in free-fall. They landed safely to be taken prisoner, but the five other occupants were all killed. Among them was P/O Christopher Panton, the English flight engineer, whose younger brothers Fred and Harold own the Lincolnshire Aviation Heritage Centre at the former wartime home of 57 and 630 Squadrons at East Kirkby in Lincolnshire. It is home now to Lancaster NX611, and is a memorial principally to 5 Group squadrons, but also to the brother who did not return. It is generally accepted that a nightfighter was responsible for the loss of this crew. However, an article by F/L A P Heathcote of the Air Historical Branch, which appeared many years ago in the Roundel magazine, states that the explosion was attributed by the pilot to fuel

vaporization in an empty fuel tank, and that no enemy action was reported. A similar fate almost overtook the crew of F/S Reinelt following an encounter with a nightfighter, but they managed to struggle back to Manston in a Halifax, which had survived the loss of thirty two square feet of skin, burned off during a fire lasting two hours. The pilot and navigator each received a well-deserved DFM for their efforts in bringing the Halifax home.

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" were not to 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 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.

The new offensive began in earnest on the night of the 9/10th, when two operations were mounted against railway targets in France. 239 aircraft from 3, 4, 6 and 8 Groups attacked 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 inflicted on French civilians in adjacent residential districts. Around five thousand houses were destroyed or damaged, and 456 people were killed. This was a problem, which would never satisfactorily be addressed, and the night's other operation at the Villeneuve-St-Georges railway yards in Paris, conducted by elements from all the Groups, including a 433 Squadron contingent, 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, the 433 Squadron element making up a force of 122 Halifaxes assigned to the latter, the Merelbeke-Melle yards at Ghent. Oboe Mosquitos provided the marking for an accurate attack, but stray bombs again caused havoc in nearby residential areas, and more than four hundred Belgian civilians lost their lives. Crossing the enemy coast outbound, a 427 Squadron Halifax, LV883, was hit by flak and forced to return early. At the controls was W/C Burgess, on detachment from 433 Squadron to gain operational experience before succeeding W/C Sinton as commanding officer. Shortly after midnight, the Halifax arrived back over East Anglia, and was abandoned by the crew in the general vicinity of Ipswich. W/C Burgess sustained injuries sufficient to hospitalize him for a

spell, and he was subsequently posted to the command of 426 Squadron in July. 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, which left massive damage to buildings and communications, and killed over fifteen hundred people. Although 6 Group was not involved, Skipton-on-Swale's squadrons were denied a night off, some from each unit heading for the Kattegat to lay mines. F/S Edmondson arrived back with many flak holes, but no crew casualties.

There were no main force operations during the following week, and it was during this period, on the 14th, that Bomber Command became officially 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. Operations resumed on the night of the 18/19th, when four French railway yards were earmarked for destruction. 6 Group provided a 173 strong main force of Halifaxes and Lancasters for those at Noisy-le-Sec in Paris, and extensive damage was inflicted upon the track, engine sheds and workshops. Additionally, however, 750 houses were destroyed, at least two thousand others were damaged, and 464 French civilians were killed. Among the four missing Halifaxes were two from 433 Squadron, both of which fell victim to flak over the target. HX287 and LV971 contained the crews of F/S Sturmy and F/L Edmonds respectively, and all fourteen men were killed. Two nights later, the Lancasters of 6 Group took part in a massively destructive assault by over three hundred aircraft on Cologne, while the Group's Halifax brigade took on the railway yards at Lens. The latter was one of three railway yards accurately targeted on the night, and the engine sheds and repair workshops were particularly hard-hit from a medium height of 8-12,000 feet. A force of almost six hundred aircraft from all but the now largely autonomous 5 Group attacked Düsseldorf on the 22/23rd, in a standard area raid. Heavy damage was caused in the northern half of the city, where around two thousand houses were destroyed or seriously damaged, and many war industry factories lost production for varying periods. The death toll on the ground exceeded a thousand, but a typical Ruhr response from the defenders prevented an entirely one-sided affair, and twenty-nine bombers were brought down.

It was a bad night for the Porcupines, their worst to date, which left them contemplating three empty dispersals at Skipton-on-Swale, while another one stood vacant over on the 424 Squadron site. A nightfighter caught HX291 over Holland on the way home, but by the time it crashed in flames across the border in Belgium with three of the crew still aboard, F/O Canter and three others had taken to their parachutes. The pilot, navigator and Maltese rear gunner soon found themselves in enemy hands, but the wireless operator, F/O Schnobb, arrived on the ground close to the Dutch/German frontier, and walked for the next day and a half. He was given shelter at a number of houses before eventually contacting the underground, and after almost being discovered by the Gestapo, was taken to Liege, where he remained until American forces arrived in the city. There were six survivors from LV840, which was damaged by a combination of flak and a nightfighter over Holland, before eventually crashing in flames in Germany. The pilot, W/O Bourgeault, presumably stayed with the aircraft to give his crew the best chance of survival, and was the only one to lose his life. Of the others, five were captured, while the navigator avoided a similar fate. W/O Dennstedt landed on the

German side of the frontier, and spent the next three weeks heading in a south-westerly direction through Belgium and Luxembourg, helped on his way by friendly natives. The local underground was unable to spirit him away, but he eventually made his own way towards the advancing Allies, and met up with American troops in early September. LV990 was hit by flak when passing east of Aachen, and the wireless operator, Sgt Morris, remembers only that a fire was raging within the fuselage around the rest position. Some time later he regained consciousness in the German countryside, and concluded, that he had been thrown clear when the Halifax exploded. Sadly, he was the only survivor from the crew of F/O Burns.

Later, during the afternoon of the 23rd, HX288 nosed over after landing at Skipton with a burst tyre during training, but even though the Halifax was a write-off, P/O Major and his crew were not hurt. This was actually the start of a period of almost eight weeks, during which the squadron would post no crews missing, and lose no aircraft or aircrew to accidents. It coincided also with a welcome reduction in losses for the Group as a whole, which had seemed to start with the arrival of a new AOC, AVM "Black Mike" McEwen on the 29th of February. While 5 Group, now known in Bomber Command circles as the "Independent Air Force", went to Munich on the 24/25th, Karlsruhe provided the objective for a 637 strong main force, of which almost 140 were provided by 6 Group. Conditions over southern Germany were not ideal for bombing, and included unexpectedly high cloud and icing. A stronger than forecast wind pushed the Pathfinder markers well to the north of the planned city centre aiming point, and it was consequently this half of the city which sustained the bulk of the damage. Here over nine hundred houses were destroyed or seriously afflicted, but other nearby urban areas, namely Mannheim, Ludwigshafen, Darmstadt and Heidelberg, also reported bombs falling. Nineteen aircraft failed to return, but 433 Squadron came through almost unscathed. P/O Brown and his crew put K-King down at Woodbridge with sixty four square feet of skin missing from its starboard wing, but happily no crew casualties, and the pilot and navigator were awarded immediate DFCs.

The 26/27th was a night of heavy activity involving three major operations at widely dispersed targets. Almost five hundred aircraft drawn from all but 5 Group attacked Essen, 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, and 5 Group went to Schweinfurt. 433 Squadron was involved in the first mentioned operation, from which returning crews claimed an accurate attack for the loss of a modest seven aircraft. On the 27/28th, 6 Group's Lancaster element joined others from 1, 3 and 8 Groups to attack the highly industrialized town of Friedrichshafen, on the northern shores of the Bodensee on the border with Switzerland. The Halifaxes of 4 and 6 Groups, meanwhile, were out in force attending to railway targets in simultaneous raids at Aulnoye and Montzen. The former, in which 433 Squadron participated, was particularly concentrated, and much damage was inflicted upon the yards. A similar target at Somain occupied the Group's Halifaxes on the last night of the month, but an errant Oboe marker attracted most of the bombing away from the yards and into open country. This occurred despite the Master Bomber's exhortations that the crews should wait for further target indicators to go down, and the results of the raid were disappointing.

On the 1st of May, Skipton-on-Swale became a satellite station of Leeming as 63 Base. The base system allowed Groups an efficient way of detailing or standing down a part of the force as required, and it meant that 433 and 424 Squadrons would operate more often than not in concert with Leeming's 427 and 429 Squadrons. May would prove to be a busy month for the Porcupines, and ten of its seventeen operations would be of the mining or "gardening" variety. While six separate bombing operations took place over France on the night of the 1/2nd, 433 Squadron contributed Halifaxes to mining operations along the French coast. This was repeated on the 3/4th, while 1 and 5 Groups were smashing a panzer training camp and motor transport depot at Mailly-le-Camp, and receiving a severe mauling from nightfighters for their trouble. With the Normandy landings now only a month away, operations were directed at coastal batteries, most of which were situated in the Pas-de-Calais, well away from the actual invasion beaches. The intention was to maintain the deception that the invasion fleet would head for the nearest point on the French coast at Calais, and only at the last minute would operations take place against gun emplacements along the stretch of Normandy coastline earmarked as the genuine landing ground. A 433 Squadron element was assigned to a site at St Valery-en-Caux on the 9/10th, one of seven targets for over four hundred aircraft, while the following night found the Porcupines bombing railway installations at Ghent. On the 11/12th, a 6 Group raid on railway yards at Boulogne largely missed the target, and killed over a hundred Belgian civilians in adjacent residential districts.

After a week of minor activity, heavy operations resumed on the 19/20th, when most of the activity centred around railway yards, although two coastal batteries and a radar station were also attacked. One of the batteries was at Le Clipon, and it was assigned to a force of fifty eight 6 Group Halifaxes, including a contingent from 433 Squadron. 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. On the 22/23rd, Dortmund hosted its first heavy raid since the Ruhr campaign, and sustained heavy damage at the hands of 1, 3, 6 and 8 Groups. 433 Squadron was also active on this night, contributing to a 6 Group Halifax attack on the railway yards at Le Mans. F/S Porter brought his Halifax home with a hole in one wing, courtesy of a 500lb bomb from a higher flying aircraft. Later events would suggest that this crew had now used up its ration of good fortune. Two nights later, railway yards at either end of Aachen were the objectives for over four hundred aircraft from all but 5 Group. Aachen-West and Rothe-Erde were both extensively damaged, but so was the area of the town in between, as were the villages in close proximity to the yards. Over eleven hundred sorties were launched on the 27/28th, 6 Group contributing 149 aircraft to 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. This time it succumbed to accurate bombing by a predominately Halifax force, and severe damage resulted. Aachen was also revisited on this night by Lancasters, while 5 Group plastered a railway junction and workshops at Nantes, and also contributed to attacks on five gun batteries along the French coast. On the last night of the month, 433 Squadron was involved in an operation against a wireless transmitting station on the coast at Au Fevre,

and four of the six masts were destroyed. During the course of May, the Squadron dispatched 173 sorties, all but four of which were effective, and lost no aircraft from its seventeen operations of all types. A sad note, however, was the departure of the popular W/C Sinton on the 30th at the conclusion of his tour. He was posted away from the operational scene, and was replaced on the 31st by W/C Lewington.

The first week of June was dominated by preparations for the impending invasion, and was characterized by unsettled weather. 433 Squadron would spend the entire month operating over France, beginning on the night of the 2/3rd with an attack on a coastal battery at Neufchateau, one of four similar targets in the Pas-de-Calais. Only one of the aiming points was satisfactorily bombed, but as deception was the purpose behind the raids, accuracy was of secondary importance. Apart from mining sorties around the French and Dutch coast by 433 and 428 Squadrons, 6 Group stayed on the ground on the following night, but was assigned to a coastal battery at Calais on the 4/5th, the only one of four sites to be clear of cloud. Oboe marking led the way, and the Canadian Lancasters and Halifaxes followed up to plaster the target. One of the sites was at Maisy in the actual invasion area, but cloud here resulted in an inconclusive attack. Over a thousand aircraft were aloft on the 5/6th, D-Day Eve, and were assigned to one or other of ten coastal batteries to be attacked ahead of the invasion force. 6 Group aircraft participated at Merville, Houlgate and Longues, and over five thousand tons of bombs were delivered onto all aiming points, a new record for a single night. Most of this tonnage had to be dropped through cloud on Oboe markers, and it was difficult to assess the effectiveness of the effort. 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. In addition to the above-mentioned bombing operations, over two hundred and fifty other sorties were flown in deception, diversionary and other support rolls, raising the total number of sorties for all the night's activities to a new record of 1,211. Other than some minor flak damage to F/O Morgan's aircraft, 433 Squadron came through the night unscathed.

D-Day Night brought another thousand aircraft into action, this time against road and railway communications targets in or near towns on the approaches to the beachhead. A total of almost 240 aircraft from 6 Group were involved at Coutances and Conde-sur-Noireau, where cloud hampered the marking and bombing. 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. 433 Squadron contributed to a raid at Acheres, where the bombing was accurate, but the deeper penetration required for these targets provided more time for the nightfighter controller to marshal his forces, and thirty aircraft were shot down. The assault on enemy railway communications continued on the 8/9th at five locations, 6 Group concentrating its effort at Mayenne, while 617 Squadron successfully delivered the first of the Barnes Wallis designed 12,000lb Tallboy deep penetration bombs onto the Saumur tunnel. Crews from 433 and 428 Squadrons spent the night mining the waters around the major French ports. On the 9/10th, four airfields south of the beachhead occupied elements of 1, 4, 6 and 8 Groups, to

prevent their use by the enemy to bring reinforcements to the battle area. 433 Squadron sent a contingent to join others of 6 Group at Le Mans airfield, and like the other three targets, this was accurately bombed. Meanwhile, a second 433 Squadron element went with 428 Squadron representatives to lay mines around Brest and Le Havre. The following night brought over four hundred aircraft into action against railway targets at four locations, including Versailles, which was the target for 6 Group. All of the attacks appeared to be accurate, but losses were again relatively high, amounting to eighteen aircraft. The 6 Group crews went in at 6-8,000 feet, and F/O Ellison's Halifax sustained serious damage to a wing, and had the port fin and rudder torn off by flak. Happily, he was able to bring the aircraft home to a safe landing at Westcott, and there were no crew casualties.

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. 6 Group was assigned to targets at Arras and Cambrai, the former involving the 63 Base brigade, which delivered a moderately accurate attack, while much of the bombing intended for the latter fell into the town itself. It was during this operation, that P/O Mynarski of 419 Squadron displayed the selfless courage, which ultimately cost him his life and earned him the posthumous award of the Victoria Cross. Twenty three aircraft were lost from these raids, all of them from 4 and 6 Groups, and a further seventeen Lancasters failed to return from the oil strike, but 433 Squadron's magnificent loss-free record survived another 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 predominately 1 Group force. 3 Group completed the assault at dusk, and few if any marine craft escaped the carnage unscathed. While 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, while forces drawn from 4, 6 and 8 Groups attended to railway installations at three locations. Cambrai was back on the target list on this night, and 63 Base concentrated its efforts here, while another element from 6 Group was active at St Pol. Cloud and ground haze made identification difficult, and the attacks were not concentrated. Two aircraft failed to return to Skipton-on-Swale, one from 424 Squadron, and the other from 433 Squadron, thus bringing to an end a loss-free period covering more than four hundred sorties and extending back to April. The missing crew was that of the previously mentioned and squadron founder member F/S Porter, whose LV966 crashed in France with no survivors. Particularly tragic was the fact that this crew was on the threshold of completing its tour of operations. The evening of the 15th was devoted to the

bombing of Boulogne in a repeat of the previous night's operations against Le Havre. This operation, by elements of 1, 4, 5, 6 and 8 Groups was equally effective, although the town itself suffered its worst experience of the war. 6 Group put up over 160 aircraft, and a Halifax from 425 Squadron was its only casualty.

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, a quarter of them from the Canadian units, to attacks on four targets in the Pas-de-Calais, and each was effectively dealt with without loss. 433 Squadron was involved at the Sautrecourt site, which was attacked from 14-17,000 feet. Meanwhile, a second force, including another hundred aircraft from 6 Group, continued the oil offensive at Sterkrade/Holten, but failed to inflict more than slight damage in the face of complete cloud cover. On the following night, 6 Group provided a Halifax main force for an attack on a flying bomb site at Oisemont, near Abbeville, and after a short break from operations, another attempt was made on this target on the 21st, together with raids on two similar sites. On this latter occasion, F/O Valk had to return early with a dead engine, while the presence of cloud at two of the aiming points forced the Master Bombers to call a halt very early on. The 433 Squadron crews consequently had to bring their bombs home, while the St-Martin-l'Hortier site was bombed through the cloud. 433 Squadron was involved in its first daylight operation on the 24th, when participating in an accurate attack on the Bonnetot V-Weapon constructional works. It was a new and unnerving experience for the crews to see the other aircraft around them, but it was something to which they would become accustomed throughout the summer, and indeed for the remainder of the war. That night, over seven hundred aircraft were involved in the bombing of seven sites in clear, moonlit conditions, and twenty Lancasters and two Stirlings were shot down. Elements of 1, 4, 6 and 8 Groups attacked three sites by daylight on the 25th, the 6 Group Halifax element assigned to Gorenflos. Over seven hundred aircraft took part in operations against six similar targets on the 27/28th, and this time 6 Group's efforts were directed at Wizernes and Foret D'Eawy.

A switch to railway targets on the 28/29th found a 433 squadron contingent operating against Metz as part of a one hundred-strong 6 Group force, while 4 Group attended to Blainville. It was a fairly expensive night costing eighteen Halifaxes and two Lancasters, although none of the eight missing from Metz was from 433 Squadron. This was almost not the case, however, as W/O McVeigh and his crew survived four nightfighter attacks relatively unscathed, until finally losing the starboard fin and rudder of C-Charlie, and sustaining severe damage to the starboard wing and control surfaces. The pilot lost control at this stage as the wounded Halifax entered a spin over the target, and the bomb-aimer and mid-upper gunner responded to an order to bale out. The pilot regained control at around six thousand feet, and despite losing the port-inner engine almost immediately thereafter, nursed the ailing aircraft back to the emergency strip at Woodbridge. The landing was carried out safely, although at well above recommended speed in order to keep the starboard wing off the ground, and W/O McVeigh was rewarded with an immediate DFC for his airmanship, and was commissioned shortly afterwards. The two absent members of the crew managed to retain their freedom with a little help from the local resistance organisation, and they eventually made contact with American troops in August. It was a memorable night for the squadron in another way, after it

was able to claim its first two nightfighter kills. The gunners in the crews of F/O Nixon and F/O Stein were those responsible, and it set the seal on the squadron's busiest month to date, in which almost a thousand tons of bombs and mines were delivered. In just fifteen days from the 2nd to the 17th alone, thirteen bombing and mining operations were flown, and the pace of activity would not let up in July.

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. 6 Group had at last "come of age", and had cast off its reputation as the chop Group, addressed its problems of serviceability and early returns, and was leading the way in other aspects of operational procedure. It was now able to dispatch and land its aircraft faster than the rest of Bomber Command, and it relinquished the use of tracer ammunition, on the basis that it attracted attention to a greater degree than it helped accurate shooting. 6 Group opened its July account in daylight on the 1st, with an attack by its Halifax units on the flying bomb site at Oisemont. On the night of the 4/5th, while 5 Group raided a flying bomb store in caves at Creil, otherwise known as St-Leu-d-Esserent, 1 and 6 Groups sent forces against the railway yards at Orleans and Villeneuve-St-Georges respectively. Although all of the operations were concluded successfully, enemy nightfighters were active, and contributed to the loss of twenty eight aircraft from all of the night's activity. It was a bad night for 433 Squadron, and something to which it had become unaccustomed. Three of its aircraft failed to return, and the only consolation in time would be the news that twelve of the twenty-one men involved were alive, either in captivity or on the run.

The problems arose as the aircraft were heading home across France, and it was here that HX353 was caught by a JU188 and set on fire amidships and in the port wing root. P/O Wolstencroft ordered his crew to bale out, but he and his flight engineer found their parachutes had been burned, and were forced to ride the flaming Halifax down. Remarkably, despite choking smoke and searing flames within the fuselage, the pilot, who was an American, found a soft field upon which to execute a perfect belly-landing, but he and Sgt Chambers were unable to evade their captors. Three other members of the crew managed to retain their freedom until mid August, when they were captured by retreating enemy troops. While in transit, however, the vehicle in which they were travelling was strafed by an Allied fighter, and two of the captives escaped in the confusion to ultimately evade recapture. The third man was wounded in the attack, but was eventually set free by American ground forces in September. The crew's only fatality was the wireless operator, who failed to survive his descent with a burning parachute. LW120 also fell victim to a nightfighter, and the pilot, F/L Yunker, was killed in the ensuing crash along with his mid-upper gunner. Of the five survivors, four became PoWs, while the navigator evaded capture with the help of local people, who put him in touch with the Maquis. It was also the navigator who had the fortune to be the lone survivor from the crew of F/O Baird, after LW123 was sent crashing from the sky in flames by a nightfighter.

On the following night, 64 Base provided the 6 Group contribution to attacks on two launching and two storage sites, while on the 6th, 63 Base crews were those on duty, and they

were in their aircraft at first light ready to take-off for the storage site at Siracourt. This was just one of five similar targets to be attacked during the day and evening involving five hundred aircraft. Skipton-on-Swale lost just one 424 Squadron crew from the morning's activities, while 433 Squadron came through unscathed. The first major operations in support of the ground forces took place around Caen on the evening of the 7th, and involved 460 aircraft, almost ninety of them from 6 Group. Canadian and British forces were facing a series of fortified villages to the north of the town, and the original plan was to bomb these. However, the close proximity of Allied troops was deemed to be inviting disaster, and the aiming points were moved to open ground closer to Caen. The marking and bombing were accurate, and over two thousand tons of high explosives rained down, throwing a vast cloud of dust and smoke into the air. Much damage was caused to the northern suburbs of Caen, however, and this would later prove to be more of a hindrance to the Allied advance, and although some German units were badly shaken by the assault, casualties were light. One hundred 6 Group aircraft were called to action in the early afternoon of the 9th, to join forces with almost 250 other aircraft from 3, 4 and 8 Groups. Their targets were at Ardouval and Mont Candon, two of six flying bomb launching sites, where the attacks were delivered from 10-12,000 feet. Unfortunately, cloud cover caused difficulties, and some of the bombing was scattered, while F/O Miller brought his bombs home having been unable to see the target indicators. On the 10/11th, eight crews from 433 Squadron laid thirty-two mines around the Frisians before returning safely. A significant event on the 11th was the first heavy Oboe operation, in which an Oboe-equipped Lancaster of 582 Squadron, piloted by 109 Squadron's W/C Grant, led a gaggle of other Lancasters, which dropped their bombs when Grant's were observed to fall. The method allowed for a greater tonnage of bombs to be delivered by Oboe, and was particularly effective against precision targets, as in this case, a flying bomb site at Gapennes. The method would continue in use, and a similar system called G-H would find success in the hands of 3 Group from October to the end of the war.

190 aircraft were dispatched by 6 Group on two separate operations during the course of the 12th, the first in company with a 4 and 8 Group element against a flying bomb store at Thiverny. The target was cloud covered, and no assessment of the outcome was possible. That night, the same Groups were engaged against four launching sites, in the case of 6 Group at Bremont and Acquet, and all were believed to have been hit from medium level. Other elements of the Command were meanwhile targeting railways, to maintain the pressure on the enemy's communications. On the 14th, 433 Squadron's LW115 suffered an engine fire while over the Isle of Man during a training exercise. Suddenly, the Halifax was torn apart by an explosion, which scattered wreckage over a wide area, and killed the entire crew of W/O Murie. That night, 6 Group Halifaxes went to Anderbelck, and in clear conditions, plastered the flying bomb launching site from 12-13,000 feet, and this was the first time for 433 Squadron during the month, that its crews had been able to actually see one of these small targets. The other attacks thus far in July against flying bomb sites at Siracourt, Ardouval, Acquet, Ferme-du-Forrestal and L'Hey had been conducted through cloud, and were frustratingly inconclusive. On the credit side, however, the Group was negotiating the operations with minimal losses, and this fine record was maintained on the 15/16th, when ninety-one aircraft were dispatched against the flying bomb supply site at Nucourt.

Even before dawn on the 18th, the first of over nine hundred aircraft began taking off for the Caen area, where the British Second Army was about to launch Operation Goodwood. American bombers also participated, but 5,000 of the 6,800 tons of bombs delivered onto the five aiming points were carried by RAF aircraft. 6 Group was assigned to aiming points at Caen and Mondeville, and the attacks were carried out from between seven and nine thousand feet to ensure accuracy. The operations were a stunning success, and in the absence of enemy fighters, only six aircraft were lost to flak or friendly bombs. That night, 1, 6 and 8 Groups were sent to attack the oil refineries at Wesseling near Cologne and Scholven/Buer in the heart of the Ruhr. The former had been the target for a 5 Group disaster a month earlier, when thirty-seven Lancasters were brought down, mostly by nightfighters over France on the outward flight. On this night, it was to face 150 aircraft from 6 Group, with a handful of 101 Squadron ABC Lancasters and a Pathfinder element in support. An unusual feature of the plan called for the force to drop down to three thousand feet or less over enemy territory to outwit the nightfighters. This was greeted with a degree of head-shaking by the crews at briefing, because of the difficulty of controlling a heavy aircraft at lower altitudes, and the risk from light flak. In the event, it proved to be an inspired idea, and apart from three early returns, the force reached the target intact. The marking was accurate and the bombing from 11-14,000 feet was concentrated, inflicting sufficient damage to cause a substantial loss of production. While this operation was in progress, a busy night saw predominately 3 and 5 Group forces in action over France attending to railway junctions at Aulnoye and Revigny respectively, and a small 4 Group contingent attacked a flying bomb site at Acquet. On the 19/20th, six 433 Squadron crews laid twenty-four mines in the Heligoland area, and returned safely. It was back to flying bomb sites for 6 Group on the 20th, when six targets were attacked by daylight by over 350 aircraft representing a number of Groups. 433 Squadron's F/O Simpson was soon back in the circuit with a dead starboard-inner engine, and bad weather over base forced seven returning crews to land at Marston Moor. On the following day, 6 Group provided a small main force for a return to the Anderbelck site, but conditions were unhelpful, and no results were observed.

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. The force, which included a 6 Group element, 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. 433 Squadron, meanwhile, contributed to a 6 Group Halifax main force, sent to attack an oil refinery and storage depot at Donges in a new campaign against the enemy's oil industry in the occupied countries. Situated near the mouth of the River Loire, the target was accurately bombed in good visibility from 12-14,000 feet, and a tanker was left capsized. The first of three major raids on Stuttgart over a five night period began on the 24/25th, and involved a force of over six hundred aircraft. 433 Squadron did not take part on this night, but was active instead over a flying bomb site at Ferfay. 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 raids carried out in February and March. The central districts were now devastated, but twenty-one aircraft failed to return,

4.6% of the force. 550 aircraft set out to return to Stuttgart on the following night, this time with a 433 Squadron element, and delivered what would prove to be the most devastating of the three attacks. Losses were lower this time, amounting to twelve aircraft, although not included in this figure was a 433 Squadron Halifax, which came to grief on take-off. LV911 caught fire and exploded after slewing off the runway, but P/O Wright and his crew miraculously emerged unscathed.

Only 5 Group was out in force on the following night, while the entire heavy brigade stayed at home on the 27/28th. 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 nightfighters 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 433 Squadron had to post missing one of its crews. MZ816 was on the way home over Germany having bombed the target, when the port-inner engine erupted in flames. The fire could not be controlled and spread to the wing, which suddenly broke away, throwing the doomed Halifax into a spin. Had it not exploded, the centrifugal force would undoubtedly have prevented any of the crew from escaping its death plunge, but three members of F/O Armstrong's crew were hurled into space and managed to deploy their parachutes in time. All three were captured, and the wireless operator sustained severe back injuries, which caused a degree of paralysis, but they were more fortunate than the pilot and the three others, who lost their lives. It was a bad night all round for 6 Group, which lost a total of twenty two aircraft, one of them from Skipton-on-Swale containing the 424 Squadron commanding officer, W/C Blane, who was killed.

In the early morning of the 30th, almost seven hundred aircraft took off to attack six German positions facing predominately American ground forces in the Villers-Bocage - Caumont area. Some of the aiming points were partly obscured by cloud, and the Master Bombers consequently allowed less than half of the crews to bomb. This meant that only two targets were considered effectively dealt with, and some of the 6 Group crews delivered their attacks from between 1,500 and 4,000 feet. It had been another busy month for the Porcupines, with bombing operations punctuated by mining sorties, and the latter activity brought July's proceedings to a close on the night of the 31st. Four crews planted sixteen mines around Brest, before returning without incident. It had been an expensive month when compared with May and June, six aircraft and five crews having been lost, and August was not about to offer respite in this regard. On a more positive note, the elevation of 6 Group to a position of deserved prominence within Bomber Command was complete. In June the Group had achieved an average of 93% of its aircraft attacking the primary target, a Bomber Command record. In July this had increased to 95%, and postings to 6 Group were now sought-after, rather than being considered the kiss of death.

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. 433 Squadron contributed to 6 Group's 151 aircraft, but all of them returned with their bombs still on board. The Group stayed at home on the following day, while four sites were attacked by other elements of the Command, but the Canadian squadrons contributed 261 aircraft to more than eleven hundred involved in attacks on three targets on the 3rd. Two of them, at Bois-de-Cassan and Trossy-St-Maximin had been bombed on the previous day, and to these was added a further site in the Foret de Nieppe, which was the destination for the 433 Squadron contingent in the early afternoon. F/O McGrath was thwarted by an unserviceable starboard-outer engine and had to return early, and P/O Solomos brought his bombs home after failing to identify the aiming point. All three sites were effectively bombed in clear conditions, however, and there were no casualties from among the 6 Group participants. On the 4th, 6 and 8 Groups put up almost three hundred aircraft between them for another swipe at Bois-de-Cassan and Trossy. The former was the Canadian objective, and was attacked in clear conditions for the loss of two aircraft to enemy action, one of them a 424 Squadron Halifax from Skipton. As 433 Squadron's HX275 was leaving the target area, flak slightly wounded the bomb-aimer, and caused damage to the rudder control rods which could not be repaired. The two gunners helped to steer the Halifax by pulling on the control cables, and in this way, a safe return was made to home airspace. Once there, and with insufficient control to attempt a landing, F/O Simpson and his crew took to their parachutes, and all arrived safely on the ground. For their devotion to duty, Sgts Brown and Budd received the immediate award of the DFM, while their pilot received the DFC.

On the following day, more than seven hundred aircraft pounded the storage sites in the Foret de Nieppe and at St-Leu-d'Esserent, the latter the objective for 433 Squadron. It was spared two Porcupine bomb loads, however, as F/O Pierce and P/O Forbes returned early, the former unable to climb and the latter with some other technical difficulty. As MZ828 was approaching to land at Skipton, it appears that an engine failed and the pilot, P/O Harrison, lost control. The Halifax crashed into the village of Skipton Bridge adjacent to the airfield, smashing through trees and skidding across the village square. Tragically, a five year old boy was unable to run clear and was killed. The pilot also died at the scene, while the flight engineer, Sgt Whitbread, succumbed to his injuries in hospital. (Bomber Command Losses Vol 5. W R Chorley.) 6 Group took a day off on the 6th, before detailing 235 aircraft for operations in support of the land campaign on the 7th. During preparations at Skipton for the night's activity, 433 Squadron's MZ895 caught fire during refueling and was completely consumed, and two LACs lost their lives. From mid evening onwards, a thousand aircraft took off to attack five aiming points ahead of Allied ground forces in the Normandy battle area. However, because of the close proximity of Allied troops, the attacks were carefully controlled by experienced Master Bombers, and only two thirds of the aircraft actually bombed. Among those bringing their bombs back were 101 aircraft from 6 Group, including W/C Lewington and four others from 433 Squadron. Meanwhile, a second 433 Squadron element went mining off Lorient and St Nazaire, depositing eighteen 1,500lb vegetables before landing safely at Colerne. The main force Lancasters stayed at home on the 8th, while Halifaxes of 4 and 6 Groups took the strain accompanied by a Pathfinder contingent. The 6 Group target was an oil storage dump in the Foret-de-Chantilly, and as the crews left it behind, fires could be seen. 433 and 424 Squadrons had been originally briefed to participate in the operation, but a change of plan had the Skipton armourers swarming around the aircraft

swapping bombs for mines. The station was ordered to provide twelve aircraft with four mines each to plant in the inner harbour at Brest after dark. This was duly accomplished, and only one of the forty-eight mines failed to release. It was back to flying bomb-related targets on the 9/10th, as 6 Group put up sixty seven aircraft, and this was followed twenty four hours later by a raid on an oil storage depot in the port of La Pallice, for which 138 crews were detailed. Later on the 11th, the King and Queen, together with the two princesses, attended an investiture at Leeming, at which a number of the previously mentioned 433 Squadron airmen received their decorations.

The time was now fast approaching, when Harris could turn his attention once more upon industrial Germany. Throughout the summer, the Pathfinders had been under extreme pressure through having to provide aircraft for numerous simultaneous operations day after day and night after night. Only 5 Group was capable of complete autonomy, but even so, occasionally called on 8 Group to provide Oboe Mosquitos. Harris was keen to find a way of easing the pressure on the Pathfinders, and planned an experiment for the night of the 12/13th. It was to be a busy twenty four hours for 6 Group, which earlier in the day provided 104 aircraft, including some from 433 Squadron, as the main force for a successful attack on a fuel dump in the Foret-de-Montrichard. That night, Harris sent 379 Lancasters and Halifaxes to Brunswick, without the presence of a single Pathfinder, in order to assess the ability of main force crews to identify and hit an urban target on their own, using only H2s to guide them to the mark. 6 Group contributed sixty-nine aircraft to the experiment, which, sadly, was not overwhelmingly encouraging, for, although the centre of the town was hit, so were other towns up to twenty miles distant. To compound the disappointment, twenty-seven aircraft failed to return, 7% of the force, and this occurred despite the fact, that almost three hundred aircraft had acted as a diversion to split the enemy defences by raiding the Opel motor works at Rüsselsheim. This force also lost twenty aircraft, and together with two missing Mosquitos from support operations, this brought the night's casualty figure to forty-nine. 433 Squadron was not involved in this operation, and, in fact, would not operate over Germany at all during the month. The Porcupines spent their night continuing the assault on flying bomb sites, while other elements from the Group bombed enemy troop concentrations in the Falaise area, or went mining off Biscay ports.

The afternoon of the 14th was devoted to large-scale support for the ground forces in the Falaise area. Eight hundred aircraft were involved in the bombing of seven aiming points ahead of the 3rd Canadian Division, each controlled by a Master Bomber and deputy. Most of the bombing was accurate, including that involving the 433 Squadron element, whose aiming point was the village of Bons Tassily. However, at Haut Mesnil, some bombs fell amongst Canadian troops in a quarry, inflicting many casualties. The problems seemed to arise as the troops saw aircraft above them with bomb doors open, and let off the standard recognition yellow smoke markers to warn them off. Unaccountably, crews had not been briefed about signaling procedures on the ground, and the bomb-aimers above consequently mistook the yellow smoke for the Pathfinder target indicators, which on this day also happened to be yellow. They were immediately cast into doubt, and wondered if the instructions had been changed during the outward flight, and that they had not received the broadcast. Despite being instructed to carry out a timed run from the coast, and not to bomb before the time had

elapsed, some crews were persuaded to ignore this order by the apparent marking of the positions below, misleading instructions from Master Bombers and the sight of other bombs going down. A court of enquiry was convened in London, and was attended by crews who had bombed early. These became the scapegoats, to be posted back to main force units minus their Pathfinder Badge and acting rank, and a number of commanding officers and flight commanders were removed from their posts. It was remarkable, in view of Bomber Command's inexperience in tactical ground support, that this was an isolated case of a "friendly fire" incident, and it speaks volumes for the skill and professionalism of the crews that this was so.

In preparation for his new night offensive against Germany, Harris launched a thousand aircraft on the morning of the 15th to attack nine nightfighter airfields in Holland and Belgium. The Skipton-on-Swale brigade was assigned to Soesterberg, where the first 433 Squadron bombs went down shortly after noon in fine weather conditions. P/O Major came home early with a failed starboard-outer, but this target and the eight others were effectively dealt with. Only three Lancasters were lost from the entire series of operations, one of them from 6 Group. On the night of the 16/17th, over eight hundred aircraft set out for northern Germany, 348 of their crews briefed to attack the port of Kiel. The remainder, all Lancasters, 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. This was typical for Stettin, which never seemed to escape severe damage when attacked by the Command, unlike most other urban targets. The Kiel force included 144 aircraft from 6 Group, with an additional eighteen carrying "vegetables" to be planted in Kiel harbour. Of the latter, five were from 429 Squadron and thirteen from 433 Squadron, and three of these would not be returning to Skipton-on-Swale after the operation, which, on the credit side, resulted in fifty-four mines being laid. MZ808 was over the Danish island of Fyen, when a nightfighter attack "von hinten unten", from behind and below, set the port wing root on fire. F/O Morgan apparently dived the aircraft in a vain attempt to extinguish the flames, and those who could take to their parachutes did so. Only two of this highly experienced crew succeeded, the navigator, F/O Hill, and the rear gunner, F/O Marchildon, a former professional baseball star with the Philadelphia Athletics. After around three hours in the water they were rescued by a Danish patrol boat, and handed over to the Germans. MZ863 and MZ899 both crashed into the Baltic, presumably victims of the lethal light flak that claimed so many "gardeners" at low level, and there were no survivors from the crews of F/L Valk and F/S Savard respectively. Remarkably, for a squadron so frequently called upon to carry out mining operations, twenty-six thus far amounting to 195 sorties, these were the first losses incurred.

The 18th was a busy day for 6 Group, which was involved at four different targets during the day and night. Sixteen aircraft were sent on small-scale raids on flying bomb sites by daylight, while a hundred joined in a highly destructive raid on Bremen that night, seven others went mining and the Halifax units participated in the final raid of the Transportation Plan, which had begun back in March. The target was a station and railway yards at Connantre, seventy miles east of Paris, where the main force crews exploited the accurate Pathfinder marking to inflict heavy damage on the installations. There was little to occupy the 6 Group squadrons

for the next five days and nights, and, in fact, it was not until the night of the 24/25th that the Group returned to the fray with six mining sorties off La Rochelle carried out by 433 Squadron. Twenty-four mines were successfully positioned, before the force returned to a safe landing at Tillstock. A small contribution was made to attacks on flying bomb sites during daylight on the 25th, while the night called for a much greater effort. The main operation involved 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 effected, and fifteen Lancasters were lost. Meanwhile, 5 Group was also active over southern Germany, attempting to carry out the first major raid of the war on Darmstadt, just a few miles further south of the main raid. The operation was beset with problems, however, which included the early return of the Master Bomber and the shooting down of his deputies, and this led to a widely scattered attack and little significant damage. In the event, it would prove to be only a temporary reprieve for the city. While these forces were outbound over France in the late evening, almost three hundred Halifaxes from 4 and 6 Groups took off for Brest accompanied by Pathfinder Lancasters and Mosquitos. Their brief was to attack eight coastal batteries, and those at Pointe-Robert, Fort-des-Cornouailles, Pointe-de-St-Mathieu and Kervinieue were assigned to the 6 Group element, including a 433 Squadron contingent. It appears that the bombing was accurate at most of the locations, and the only loss to the defences was a Pathfinder Lancaster. Other support and minor operations mounted during the evening and night brought the number of sorties to a new record of 1,311.

On the following night, Germany was again left to the Lancasters, which attacked the ports of Kiel in the north and Königsberg in the far north-eastern corner of the Reich, through which the enemy was supplying its eastern front. 6 Group's contribution to the night's activity was four mining sorties in northern waters. On the 27th, while 4 Group Halifaxes were undertaking the first major daylight operation over Germany since August 1941, elements of 6 and 8 Groups attacked a flying bomb site at Mimoyecques. 433 Squadron took part in the operation, in which the bombs were delivered accurately from between 16,000 and 18,000 feet. The final operations of the campaign against these targets in the Pas-de-Calais were carried out on the 28th, when twelve locations were bombed, eight of them by forces with a 6 Group element, and shortly thereafter, the region was liberated by Allied ground forces. Although the threat to southern England from the V-1 was now nullified, the V-2's reign of terror was about to begin, and its mobile launching sites would make it an elusive target for bombers. 6 Group contributed seventy-seven aircraft to these attacks on the 28th, and a further forty six divided equally between a gun battery on the Ile de Cezembre near St Malo, and shipping in Brest harbour. 433 Squadron was involved in the latter, and two crews claimed direct hits on the principal target. The Group sent another six Halifaxes back to the French coast that night, to mine the waters around the port of La Pallice, and thirty six Lancasters to take part in another successful heavy assault on Stettin on the night of the 29/30th. The month ended for 433 Squadron with a return to the Ile de Cezembre battery at around lunch-time on the 31st. It was a 6 Group affair employing 165 Halifaxes, with five Pathfinder Mosquitos in support. No defence was offered from the ground, and the crews were able to come down to three thousand feet and below to bomb. Sadly, and for no apparent reason, 433 Squadron's MZ879 entered a steep dive from which it did not recover, and it plunged into the sea, taking with it

to their deaths the crew of F/O Beveridge. For 6 Group, August had been a month to look back on with pride. A little over 3,700 sorties had been flown, a new Bomber Command record, which would never be surpassed. Losses had amounted to 0.6%, in return for which, thirteen thousand tons of bombs had been delivered, two-thirds by daylight, and over three hundred mines had been laid.

After a very heavy schedule of operations in July and August, September would bring a reduction in activity as the nature of the battle altered. 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, but first, over six hundred aircraft carried out attacks on six airfields in southern Holland in the early evening of the 3rd. This was in preparation for the forthcoming ill-fated Operation Market Garden, and 6 Group put up 105 aircraft for Volkel, before remaining off the order of battle until the 6th. In the meantime, on the 5th, the assault on enemy positions around Le Havre began at the hands of more than three hundred Lancasters from 1 and 3 Groups, and a similar number returned on the 6th. This was the day on which 6 Group undertook its first daylight operation over Germany, when committing 139 aircraft, most of them Halifaxes, to the bombing of Emden. It was an entirely Canadian main force with a Pathfinder element in support, and it was the first raid on this once frequently visited target since June 1942. The bombing was delivered from 16,000 to 19,000 feet in the early evening under the umbrella of a fighter escort, and the port was observed to be a mass of flames as the bombers departed. 433 Squadron came through without loss, although P/O Watson lost an engine while outbound, but continued on to complete his part in the raid, while a number of others landed on three engines courtesy of the Emden flak batteries. After a relatively expensive month in August, the Porcupines would now settle down to another lengthy period without casualties, which would see them through to October. The Group next operated on the 9th, the fourth day of attacks on enemy positions holding out at Le Havre, but poor visibility forced the Master Bomber to send the "boys" home with their bombs still on board. On the 10th, almost a thousand aircraft were thrown into the assault against eight separate aiming points, 6 Group contributing over two hundred, and the campaign concluded on the following day, when elements of 4, 5, 6 and 8 Groups accurately bombed enemy positions. Shortly afterwards, two British divisions began their advance into the area, and the enemy garrison surrendered within hours. 6 Group was also involved at Castrop-Rauxel during the early evening, one of three synthetic oil refineries targeted by over 350 Halifaxes, Lancasters and Mosquitos under the watchful eyes of twenty six fighter squadrons.

Later that night, a 5 Group force of 224 Lancasters and fourteen Mosquitos returned to Darmstadt in southern Germany, the scene of a failure a little over two weeks previously. On this night, in clear conditions, the 5 Group marking method worked perfectly, and the central districts of this virtually virgin target became engulfed in an inferno. A genuine firestorm erupted, which claimed the lives of over twelve thousand people, and more than half of the 120,000 population was rendered homeless. It was a horrific and devastating blow, which would be repeated at small to medium sized towns across Germany with increasing frequency, as worthwhile urban targets became harder to find. A further three oil plants were

raided on the 12th, 6 Group participating at two, at Dortmund with great effectiveness, while smoke prevented an assessment of the results at Wanne-Eickel. The former was the target for the 433 Squadron element, which was soon depleted by the early returns of F/Os Heathcote and McKellar through failed starboard-outer engines. On the night of the 12/13th, a two-pronged attack was mounted against southern Germany, while 6 Group had just twelve crews out mining. 378 Lancasters of 1, 3 and 8 Groups returned to Frankfurt for the first time since the devastating raids in March, and a predominately 5 Group force of two hundred Lancasters 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. 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. Railway installations represented the main objective for a hundred 6 Group aircraft at Osnabrück on the 13th, and the operation was concluded successfully without loss. 184 aircraft from 4, 6 and 8 Groups set out for Wilhelmshaven on the 14th, among them a 433 Squadron contingent, but all were recalled while outbound over the North Sea, after the fighter escort was unable to take off. The same Groups had 1 Group for company on the night of the 15/16th, when Kiel was the destination for almost five hundred aircraft. Returning crews claimed a highly destructive assault, which was confirmed by local reports, but even so, many bomb loads were wasted in open country. The ill-fated Operation Market Garden 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. By breakfast time, the first of over seven hundred aircraft had taken off for Boulogne to deliver a total of three thousand tons of bombs onto enemy positions around the port. The attacks were pressed home from low to medium level, 6 Group putting up 210 aircraft for this operation against the second of the French ports to be earmarked for liberation. 433 Squadron was present, and came through unscathed on a day when only two aircraft were lost to the defences. A number of the squadron's aircraft were employed on unsuccessful sea searches later in the day. Allied ground forces began their advance into Boulogne on the following day, and the German garrison surrendered after a week of fighting.

Another badly needed port was Antwerp, which lay forty miles inland from the mouth of the River Scheldt. Access was barred by heavy gun emplacements on the Island of Walcheren at the head of the estuary, and it was decided to bomb them into submission. The first of three attempts on the Domburg site was mounted on the 18th by elements of 6 and 8 Groups, but poor visibility persuaded the Master Bomber to call a halt after the Mosquito markers had gone down. A second attempt on the 19th saw the aircraft recalled while outbound, and it was the 23rd before the operation was finally carried out by a small predominately 6 Group force, which included a 433 Squadron contingent. By this time, the first of a series of raids to free Calais had taken place on the 20th. More than a hundred 6 Group aircraft were among the 646 participants, and enemy positions were accurately bombed in good visibility. F/O Mountford suffered a hang-up, and F/O Paterson's bombs remained aboard because of a faulty bombsight. On landing at Ford, the starboard undercarriage collapsed, pitching the aircraft onto its wing, and causing damage to it and the propellers. Cloud interfered with the second operation against Calais on the 24th, and a number of crews paid the penalty for coming below the two-thousand feet cloud base to bomb. It was a similar story on the 25th, when over eight

hundred aircraft encountered poor visibility, and just a third of the crews were able to bomb through breaks in the cloud. It was F/O McKellar's turn to experience a hang-up on this occasion, but he landed safely. The weather cleared on the 26th, enabling over seven hundred aircraft to target four gun emplacements at Cap Gris Nez and enemy positions around Calais. These attacks continued on the 27th without the assistance of 6 Group, which was engaged elsewhere. Oil refineries at Sterkrade and Bottrop required its attention on this day, and a total of 285 Canadian aircraft were divided between the two objectives with a Pathfinder presence at each. Conditions were far from ideal at both locations, and the bombing of the Ruhroel plant at Bottrop was based largely on Oboe skymarkers, although some crews bombed through gaps in the cloud. 433 Squadron's target was Sterkrade, where only eighty-three crews bombed as briefed, while most of the others delivered their loads onto alternative targets based on approximate positions. P/O Burch failed to make the target area because of a failed port-outer, and P/O Guy came home with minor flak damage to his Halifax. The final assault on Calais took place on the 28th, when cloud again reduced the numbers allowed by the Master Bomber to carry out an attack. Conditions were slightly better over Cap Gris Nez, which was the objective for the twelve 433 Squadron crews, and two-thirds of the aircraft bombed as planned. The "Porkies" were not among them, however, and were sent home by the Master Bomber with their bombs still on board. Shortly afterwards, the German garrison surrendered to Canadian ground forces, but it would be some time before the port was able to support the Allied advance.

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 operations in September against the heavy gun emplacements on the island of Walcheren had proved to be largely ineffective. Such precision targets were difficult to hit, and it was decided instead to breach the sea walls, thereby to inundate the gun positions, and also to 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. 6 Group opened its October account on the 4th, when providing the main force element for an attack on the U-Boat pens at Bergen in Norway. Having been forced out of French ports, the Kriegsmarine was intending to concentrate its U-Boat fleet here, and extensive construction work was under way to enlarge the pens and facilities. Most of the crews were to direct their attacks at the pens, but twenty others were briefed to bomb specific U-Boats known to be moored in the harbour. An early morning start had the aircraft away before it was light, and their arrival in the target area was greeted with fine and clear weather conditions. As a result, the Master Bomber was able to instruct the crews to bomb visually. The attack took place under a strong fighter escort of long range Mustangs, with a dozen Mosquitos of 100 Group in support, but no enemy aircraft deigned to appear. The bombing was fairly accurate, but little damage was done to the concrete structure of the pens, although the electrical wiring was wrecked. Nearby ship repair yards took some hits, and a number of U-Boats were damaged, while two small ships were sent to the bottom. Inevitably, collateral damage occurred, which led not only to a

toll in property terms of sixty houses destroyed or seriously damaged, but also to many civilian deaths. Sixty children, two teachers and seventeen others were killed in a school basement shelter, while another thirty four perished beneath a factory.

On the night of the 5/6th, Saarbrücken was raided for the first time in numbers for two years, and almost six thousand houses were destroyed in the 1, 3 and 8 Group attack 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 now only isolated occasions on which the defences gained the upper hand. Ten crews from 433 Squadron spent this night mining in the Heligoland area, and all delivered their stores without intervention from the enemy. Shortly after turning for home, however, F/O Watson's Halifax was raked from stem to stern by a nightfighter, killing the American rear gunner, P/O Zareikin, and severely damaging the tailplane. The damage to control surfaces prevented violent evasive action, and it was only possible to dive straight ahead. The mid-upper gunner, P/O Cochrane, another American, had to wait for an opportune moment before being able to bring his guns to bear, but the over-confident enemy pilot eventually presented his aircraft as a close-range target. Hits were observed on the cockpit, starboard wing and engine, and the JU88 was seen to flip over and dive straight for the sea with its undercarriage deployed. After the crew's safe return, which involved a landing at the emergency strip at Carnaby, P/O Cochrane was awarded an immediate DFC, and was credited with a "probable". All of the other 433 Squadron crews landed at Tholthorpe, where F/L McGrath reported an inconclusive encounter with an enemy aircraft.

The new Ruhr offensive opened on the night of the 6/7th, when over five hundred crews from 3, 6 and 8 Groups were briefed for a raid on Dortmund. 6 Group provided 293 aircraft, and this was its largest single effort of the war. In clear conditions, the force pounded the city, causing extensive damage to housing, industry and communications for the loss of five aircraft. Among them was LW129 from 433 Squadron, which was hit by flak at twenty thousand feet while approaching the target, and lost both port engines. With the target only five minutes away, F/O Valentine elected to press on and bomb, with the intention of reaching Allied territory on the way home before the wounded Halifax ran out of height. Flak continued to take chunks out of the aircraft until the bombs were delivered onto the target from 7,500 feet, and then course was set to the west with the ground getting closer all the time. At five thousand feet the aircraft stalled, was briefly recovered at five hundred feet, but ultimately crashed into a factory in Duisburg. Four members of the crew were killed at their crash positions, including yet another American, but the pilot, navigator and bomb-aimer all survived with injuries, and ultimately made a full recovery. F/O Kelly's aircraft was damaged by an incendiary bomb dropped from above, which took away the nose and seriously injured the bomb-aimer, F/S Nixon. Nixon remained at his post to deliver the bomb load, while the resulting wind tunnel effect from the gaping hole stripped the interior of the aircraft of all materials not secured, including all of the navigator's charts and equipment. Using only a small pilot's chart the navigator, F/O Burnett, continued to guide the aircraft home, while rendering assistance to the bomb-aimer, and for his devotion to duty he was awarded the DFC, while Nixon received the DFM. F/O Mckellar and crew came home with flak damage, and S/L van Slyck reported being attacked by a nightfighter, which failed to score any hits. 5

Group, meanwhile, was over north-western Germany, carrying out the final raid of the war on Bremen, a devastating attack, which left almost five thousand buildings either destroyed or seriously damaged.

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. 6 Group did not participate, and was not called to action again until the night of the 9/10th, when the target was Bochum. 4 and 6 Groups provided the main force of around four hundred aircraft, with a Pathfinder element and a handful of 101 Squadron ABC Lancasters in support. Conditions over the target were not good, and the operation failed to realize the degree of damage expected from such a large force at this stage of the war. 140 houses were destroyed or seriously damaged in the city's southern districts in return for the loss of five aircraft. It was an uneventful operation for 433 Squadron, from which F/L Miller returned early with an unserviceable starboard-outer engine. On the 12th, the Group provided 111 Halifaxes as the main force for a daylight attack on the oil refinery at Wanne-Eickel, which quickly became engulfed in smoke after a storage tank went up. This hampered the remainder of the bombing, and the plant escaped serious damage, although a nearby chemicals factory was destroyed.

There was to be no further action for 6 Group until the 14th, when a new phase in Bomber Command operations began under Operation Hurricane. This was intended to act as 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 shortly after 09.00 hours to deliver around 4,400 tons of high explosives and incendiaries. To be over the Ruhr in daylight was still a dangerous practice, and the flak defences claimed fourteen aircraft before being overwhelmed. This was the first time that 433 Squadron crews had been briefed for Duisburg as a primary target, and they all returned safely from what was described as a scattered but effective attack. F/O McKellar missed the party after his escape hatch blew off, and it was also discovered that the pitot head cover had not been removed. That night, and just ten hours after the last Porcupine had landed back at Skipton, they took off again to join a force of similar numbers in a return to Duisburg to press home the point about superiority. F/S Saunders suffered the failure of his starboard-outer engine and had to come home early. The remainder completed their assigned tasks, and thus were 2,018 aircraft dispatched against the city in less than twenty-four hours. By the time the last participant had returned, around nine thousand tons of bombs had been dropped during the period for the loss of twenty-one aircraft. It was a remarkable fact, that these statistics were achieved without a contribution from 5 Group, which took advantage of the nighttime activity over the Ruhr to finally nail Brunswick, which had escaped relatively lightly during four previous attacks in 1944.

Switching temporarily from the Ruhr, Harris focused his attention on northern Germany on the 15/16th, when eleven 433 Squadron crews took part in the last heavy raid of the war on Wilhelmshaven. Over five hundred aircraft made up the force, and returning crews claimed to have delivered a damaging assault. Bad weather over base forced the Porcupine crews to land

elsewhere. On the 19/20th, Harris targeted southern Germany, sending over five hundred aircraft from 1, 3, 6 and 8 Groups to attack Stuttgart in two phases four and a half hours apart. A 433 Squadron element was included in a force of 240 Halifaxes from 4 and 6 Groups bound for Hanover on the 21/22nd. P/O Saunders was soon back home with a failed starboard-inner engine, and it was not long before he was joined by the rest of the squadron, after deteriorating weather conditions over the bomber stations forced a general recall. The squadron had to wait only until the 23/24th before next going into battle, however, this time as part of the largest Bomber Command force of the war to date. 1,055 aircraft took off between 16.00 and 17.00 to deliver Operation Hurricane's message to Essen, and 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, and the city's status as a major centre of war production was about to end. Only minor operations took place on the following night, and these included mining in Oslo Fjord, for which 433 Squadron contributed three Halifaxes and 429 Squadron six. F/O Forbes was the victim of another engine failure, but his two colleagues pressed on, one of them to an encounter with an enemy nightfighter. Excellent crew co-operation enabled F/O Mountford to evade the canon shells, while his gunners sent their assailant earthwards on fire to claim a probable. Each 433 Squadron crew laid four mines, before returning safely to Kinloss.

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 was dispersed to other parts of Germany from this point, but this would not be known in Britain, and Essen would have to endure further before the end came. The city was, in fact, spared most of the 6 Group effort on this occasion, which was directed instead at the Meerbeck oil plant at Homberg. The joint 6 and 8 Group assault, in which 433 Squadron took part, was conducted through complete cloud cover from 16,000-19,000 feet, and it was impossible to assess the results. It fell to P/O Kelly to suffer the squadron's almost obligatory starboard engine failure, and he had to come home early. 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 dock-land installations. 433 Squadron played its part, and although all of its participants returned, three of them displayed damage inflicted by flak or friendly bombs. F/O Watson's mid-upper turret fell victim to the former, while falling incendiaries provided a heart-stopping moment for F/O Mountford and his crew, who ultimately landed at Woodbridge with damage to ailerons and the nose section. 5 Group carried out the final attacks on Walcheren on the 30th, when gun batteries were successfully targeted, and the land forces arrived on the following day to clear enemy resistance. After a week of heavy fighting the island was taken, but it would be a further three weeks before the approaches to Antwerp had been sufficiently cleared of mines to allow access to shipping. Later on the 30th, nine hundred aircraft, including a 433 Squadron contingent, returned to Cologne and dropped four thousand tons of mostly high explosive bombs. Massive

destruction resulted, and this was followed up twenty-four hours later by almost five hundred aircraft from 1, 3, 4 and 8 Groups.

November began for 6 Group and 433 Squadron with a trip to the Ruhr in company with a Pathfinder marker element on the night of the 1/2nd. The target was Oberhausen, a few miles to the north-east of Duisburg at the western end of the region. Despite the commitment of over 270 heavy bombers, complete cloud cover nullified their efforts and damage was only modest. Casualties were also relatively light for an operation over the Ruhr, but while 433 Squadron welcomed all of its aircraft back to Skipton, co-residents 424 Squadron posted one of its crews missing. W/C Sharp, on attachment to 433 Squadron to gain operational experience, reported an inconclusive encounter with a JU88. On the following night, the Hurricane force paid a visit to Düsseldorf with almost a thousand aircraft, and pounded the northern half of the city to leave five thousand houses destroyed or seriously damaged along with many industrial premises. This last raid of the war on Düsseldorf resulted in a bad night for the Canadian Group, which registered the loss of ten aircraft out of the twenty-four missing. A number of the overall total had crashed in or been abandoned over Allied held territory, and it would soon be ascertained that many of the crew members were safe. Among the latter was found to be one of two missing 424 Squadron aircraft from Skipton-on-Swale, while 433 Squadron again came through unscathed. F/O Mara put down at Manston short of fuel and on three engines, and P/O Bond's gunners put in a claim for an enemy aircraft damaged.

The busy start to the month continued with a third successive operation to the Ruhr on the 4/5th. This time the target was Bochum at the north-eastern end of the region, which required the crews to spend a longer time within range of the hundreds of flak guns than for the previous two operations. 4 and 6 Groups provided between them almost four hundred Halifaxes, while 1 and 8 Groups contributed over three hundred Lancasters. The conditions allowed standard Pathfinder marking to take place, and this was undertaken with great accuracy, and exploited by the main force crews. The centre of Bochum was devastated, but the bombing also afflicted the city's industrial districts, where severe damage was caused to important steelworks. Almost a thousand people died on the ground, but the defenders fought back with determination to bring down twenty eight of the bombers, all but five of them Halifaxes. 433 Squadron was unable to achieve three loss-free operations in a row, and was forced to post missing the crew of the previously mentioned F/O Mountford in NP992. This was Mountford's twenty-third operation, and he and his crew were on their way home after successfully bombing the target. In the Roundel article by F/L Heathcote of the Air Historical Branch, the Halifax's demise is attributed to a box barrage of flak, which set both starboard engines on fire. In the book *Reap the Whirlwind* by Dunmore and Carter, however, the pilot credits a nightfighter with its upward firing canons, although not one of the crew members caught a glimpse of their assailant. This was, of course, the strength of the *Schräge Musik* attack, carried out from below and behind without the use of tracer to alert the bomber crew. Whatever the cause, the fire could not be extinguished, and Mountford gave the order to bale out. This was done successfully, and all members of the crew arrived safely on the ground to ultimately fall into enemy hands. F/O Heathcote's aircraft had its electrical system knocked

out by flak, and this meant that the bomb load could not be released over the aiming point. The aircraft came back, however, and a safe landing was made at Woodbridge.

The oil town of Gelsenkirchen was next to face a large bomber force, its turn coming on the afternoon of the 6th. Taking off either side of noon the 738 strong force contained aircraft from all but 5 Group, including 215 from 6 Group. The attack was delivered from between 16,000 and 18,000 feet, but was not well concentrated. It was not possible to pinpoint the intended aiming point, and more than five hundred crews dropped their bombs into the general area of the refinery until smoke completely obscured the ground. The remainder carried out an area raid on the town itself, which suffered extreme damage, and over five hundred people were killed. The bomber losses on the other hand were light, amounting to just five aircraft, and 433 Squadron welcomed all of its participating crews home. This was the first operation presided over by 433 Squadron's new commanding officer, W/C Tambling. He replaced W/C Lewington, who, at the end of his second tour on the 5th, was posted to Dishforth as station commander. For the Command's Halifax squadrons the following nine days brought a welcome rest from operations after the hectic first week of the month. The Lancaster units continued to attack oil related targets during the period, and many minor operations took place. The only operational activity for 6 Group came on the night of the 11/12th, when twelve aircraft from 427 and 433 Squadrons were sent mining off Oslo and in the Kattegat. 433 Squadron participated without loss, and a total of forty-eight 1500lb and 1850lb mines were delivered.

Bombing operations resumed for 6 Group on the afternoon of the 16th, when 204 aircraft were contributed to a massive force of 1,188 assigned to three targets in support of advancing American ground forces. The objectives were the small towns of Heinsberg, Jülich and Düren lying behind enemy lines in an arc respectively from north to east of Aachen. The intention was to cut enemy communications, and hamper the arrival of reinforcements to face the Americans between Aachen and the Rhine. The 4 and 6 Group crews were briefed to attack Jülich with a Pathfinder element in support, and it was thus a force of over five hundred aircraft, which approached the hapless town and virtually erased it from the map. The other targets were left similarly devastated, and over three thousand people died in Düren alone. Despite this huge effort, which included a similar number of American aircraft bombing other targets, the weather and supply problems impeded the Allied advance. The only scares for 433 Squadron occurred when one of F/O Egger's one-thousand pounders became detached from its mountings and fell through the bomb doors, causing some damage, while F/O Heathcote lost his starboard-outer on the way home.

4 and 6 Groups were on duty again two days later for a raid on Münster during the afternoon. The attack was not concentrated, and all parts of the town were hit, killing over 130 people, sixty-eight of them in an air-raid shelter. F/O Guy's aircraft was hit by flak, which left holes in the fuselage, but a safe landing was made at Silloth. The night of the 21/22nd was busy in the extreme with five major operations and many of a more minor nature. 5 Group was sent canal-busting at the Dortmund-Ems and Mittelland waterways, while 1 Group attacked railway installations at Ascaffenburg, 4 Group went for the synthetic oil refinery at Sterkrade and 6 Group was assigned to a similar target at Castrop-Rauxel with some Pathfinders and

101 Squadron Lancasters in support. This last mentioned operation was highly effective, causing a fire at the plant of such intensity, that it had to be left to burn itself out, and it is believed that no further production was possible for what remained of the war. The bombing was not entirely concentrated on the refinery, however, and other industrial buildings and nearby coal mines were extensively damaged. A modest four aircraft failed to return from this operation, but two of them were from 433 Squadron, and they represented the first multiple loss since mid August. Both Halifaxes were hit during the final approach to the target, one by a nightfighter and the other by the intense flak barrage, which greeted the crews as they flew down the avenue of searchlights to the aiming point. F/O Bond and his crew had reached somewhere around the mid-point of their tour when embarking on this trip, and they had just begun their run-up to bomb when MZ284 came under attack from an unseen nightfighter. The mid-upper gunner, F/S Allan, was mortally wounded during the engagement, and died within minutes, by which time the Halifax was on fire from the fuselage to the port outer engine. The flames could not be extinguished, and the crew was forced to bale out, although the bomb-aimer and wireless operator lost their lives, presumably having failed to leave the aircraft. The others landed safely, and were taken into captivity until being liberated shortly before the end of hostilities. According to the Roundel article previously mentioned, the rear gunner, F/S Slack, was drowned in the River Elbe on the 9th of May 1945, while attempting to rescue a German soldier, who had got into difficulties. The second 433 Squadron casualty was NP949, which contained the experienced crew of F/O Guy. This was hit by flak a couple of minutes short of the aiming point, and the resulting fires in the rest position and the starboard outer engine could not be quelled. The bomb load was jettisoned in the target area before F/O Guy ordered the crew to bale out. The mid-upper gunner alone had managed to comply before the Halifax was torn apart by an explosion, which flung the pilot, bomb-aimer and rear gunner into space. All four men arrived safely on the ground to be taken prisoner, but their three colleagues were killed. Later on the 22nd, W/C Freddie Sharp was posted to the command of 408 Squadron at Linton-on-Ouse, where he would remain in post until September.

On the night of the 24/25th, a number of 433 Squadron aircraft joined forces with others from 424, 427 and 429 Squadrons to lay a total of forty-four mines in the Kattegat. This was during another lull in bombing operations for 6 Group, which came to an end on the 27/28th, when 225 aircraft were contributed to a raid on Neuss, just across from Düsseldorf on the west bank of the Rhine. Other aircraft involved from the Pathfinders and 101 Squadron brought the total to 290, and these delivered a moderately effective attack, which destroyed 150 buildings, mostly houses, and seriously damaged more than six hundred others. F/O Egger's aircraft was attacked by an enemy nightfighter, which was claimed as damaged, and all 433 Squadron aircraft landed safely at Old Buckenham, after poor weather closed Skipton-on-Swale. A simultaneous 1 and 8 Group assault on the virgin target of Freiburg in southern Germany was the first in a new wave of attacks against previously untouched non-industrial and seemingly militarily unimportant urban targets. Such attacks would characterize the final phase of the bombing war, as more worthwhile targets became increasingly difficult to find in a country so effectively leveled by persistent heavy bombing. It was these operations, at a time when Germany was already close to defeat, which led to questions concerning the morality of Bomber Command's offensive, and culminated in the controversy surrounding Dresden. From Bomber Command's viewpoint, or at least Harris's, war is war, and if the enemy refuses to

capitulate when all is clearly lost, persuasion must be applied. Freiburg was devastated to the tune of two thousand houses destroyed and a similar number of people killed, but this would pale into insignificance in the light of future events. 6 Group and 433 Squadron closed their November accounts at Duisburg on the last night of the month in company with 4 Group and elements of 1 and 8 Groups. Despite complete cloud cover and a consequent lack of concentration, over five hundred houses were destroyed and a further eight hundred were seriously damaged. Considering the number of attacks on this city, particularly the two thousand bomber raids on the 14th of October, it is amazing that so many buildings were still available to be knocked down.

December began with a feverish round of activity, which saw 433 Squadron operating four times in the first week. 1, 4, 6 and 8 Groups opened the month's proceedings at Hagen in the Ruhr on the 2/3rd, when almost five hundred aircraft pounded the town's central, eastern and southern districts. Eighteen hundred buildings were either destroyed or seriously damaged, and although most of them were houses, many industrial concerns were either permanently put out of action, or lost up to three months production. Just two aircraft failed to return, both of them from 6 Group, and both crashed in France. MZ807 was a 433 Squadron Halifax, which was shot down on the way home, and crashed before any of the crew had time to bale out. F/L Cook and five other occupants were killed, but one of the gunners, F/S Mallory, remarkably managed to survive. He lost consciousness when the aircraft was hit, and eventually came-to wandering around in a field with burns to his hands and face. In the absence of a parachute, he concluded, that he had somehow prevailed as the aircraft crashed or force-landed. He was taken in by a French farmer, and over the ensuing days, his wounds were treated by a nun and he was moved to another location, where he narrowly escaped detection by a German search party. About a month after the crash he contacted French troops, who quickly arranged his transport to England. This was to be the Porcupine's final loss of the year, despite further operations during the month. F/O Mara's aircraft was attacked by a ME410, but the encounter was inconclusive on both sides.

More than five hundred aircraft from 1, 6 and 8 Groups set out for Karlsruhe in southern Germany two nights later, and those reaching the target delivered a telling blow upon the city's southern and western districts. This time F/O Mara was forced to return early with a failed starboard-inner engine. In a simultaneous attack by 5 Group, the nearby non-industrial city of Heilbronn became the next of the seemingly unimportant urban areas to be crushed. In a matter of minutes, 82% of the built-up area was reduced to ruins, mostly by fire, and around seven thousand people lost their lives. On the night of the 5/6th, almost five hundred aircraft from 1, 4, 6 and 8 Groups attacked the town of Soest, just a few kilometres to the north of the now famous Möhne Dam east of the Ruhr. The railway installations were the primary objective, and the northern half of the town in which they were situated received the main weight of bombs. More than a thousand houses were destroyed, along with dozens of other buildings, and two 6 Group aircraft failed to return, these losses in addition to two others resulting from a collision near Rugby on the way out. The flurry of operations concluded on the night of the 6/7th, when Osnabrück was visited for the first time since August 1942. This attack did not repeat the outstanding success of the week's previous operations, and the railway yards escaped relatively unscathed, while two hundred houses and a handful of

factories were destroyed. One 433 Squadron crew returned to claim an ME410 nightfighter destroyed, and F/S Clarke was rewarded with a DFM. It was far from an easy trip for F/O Mara and his crew, whose aircraft was dogged by engine trouble for most of the flight. After successfully bombing the target, the return journey was made at low level, and a landing was eventually carried out at Woodbridge on three engines and without hydraulics. F/O Mara would also ultimately receive an award, the DFC, but sadly, was not destined to survive his tour.

For 6 Group there now followed a period of eight nights without a single operation of any kind. Other elements of the Command were active, however, particularly the Mosquitos of 8 Group as always, and the two "independent air forces", otherwise known as 3 and 5 Groups. 3 Group had been operating with the G-H system since mid October, and would devote itself largely to operations against railway and oil installations for the remainder of the war. 6 Group's Lancaster squadrons returned to operations on the night of the 15/16th to take part in a raid on Ludwigshafen on the west bank of the Rhine in southern Germany. The I.G.Farben chemicals company had two factories in the area engaged in synthetic oil production, one in the northern part of Ludwigshafen itself and the other in nearby Oppau. These were the specific aiming points for the three hundred strong force, which was completed by 1 and 8 Groups, and severe damage was caused at both sites resulting in a serious loss of production. The Group contributed over 230 aircraft to more than five hundred sent to Duisburg on the 17/18th for a standard area attack. 4 Group was the other main contributor, and the predominately Halifax force succeeded in destroying a further 346 houses, and seriously damaging more than five hundred others. This was 433 Squadron's first operation since the 6/7th, and all of its crews returned without incident. While this operation was in progress, an all-Lancaster force from 1 and 8 Groups laid waste to the ancient city of Ulm deep in southern Germany, leaving 82% of the buildings damaged to some extent, and 5 Group pounded Munich.

There was no let-up as the final wartime Christmas approached, and on the 21/22nd, 6 Group was involved in the first of a series of operations against railway yards at Cologne. This attempt on the Nippes marshalling yards was unsuccessful in the face of complete cloud cover, but no aircraft were lost. Meanwhile, a second element from the Group comprising a dozen Halifaxes of 424, 427, 429 and 433 Squadrons maintained the pressure on enemy shipping around Oslo, by laying over forty 1,500lb and 1,850lb mines. 433 Squadron's F/L McGrath had the unserviceable starboard engine on this occasion, and had to abort his contribution to the operation. During the afternoon of the 24th, elements of 6 and 8 Groups attacked the airfield at Lohausen in the Ruhr, while 4 and 8 Group aircraft went for a similar target at Mülheim. An element from 433 Squadron returned to Oslo Fjord as Christmas Eve became Christmas Day, and in company with aircraft from the same three 63 Base squadrons as three nights earlier, sowed another crop of vegetables. All returned safely to be greeted by a congratulatory telegramme from the C-in-C. Christmas Day passed peacefully, but the festivities were interrupted by operations on Boxing Day. To be fair to everyone, elements from each Group were required to operate against enemy positions around St Vith, following the desperate and ill-fated counter attack in the Ardennes, which had begun on the 16th. 433 Squadron was one of those called into action, and the crews all returned safely from what

appeared to be an accurate assault delivered onto the snow-covered ground from 10,000 to 12,000 feet. The squadron's F/S Smyth lost his starboard-outer engine on the way home, but landed safely at Carnaby. The bombing of railway installations and the mining of northern waters kept the squadron busy for the final week of the year, this somewhat intense period of operations beginning at Opladen on the 27/28th. Twenty four hours later, a squadron contingent went gardening again off Oslo, while on the 29/30th, a 6 Group main force, including a Porcupine contingent, failed to deliver a telling blow against railway yards at Troisdorf. Other 433 Squadron crews went back to their second home in Oslo Fjord that night with their pals from 424 and 429 Squadrons, and planted a few more vegetables. The squadron's final bombing operation of the year took it to Cologne, where the Kalk railway yards were the objective for 470 aircraft from 4, 6 and 8 Groups, and this was a successful operation, which also severely damaged two nearby stations and blew up two ammunition trains. P/O O'Neil lost his starboard-inner engine on the way home, but put down safely at Ossington. As the clock ticked down the last few seconds of 1944, four crews from 433 Squadron were over Norway with others from 424, 427 and 429 Squadrons, engaged in yet another mining operation, from which they all returned safely in the early hours of New Year's Day.

Once the bloody winter campaign had been concluded at the end of March, and the Command had survived its lowest point of the war, 1944 had been a successful year. Although unused to attacking precision targets, the crews rose to the occasion magnificently, and laid waste to the transport infrastructure by which the enemy would have responded to the invasion. The threat from flying bombs was largely nullified, and the operations in support of the ground forces achieved everything asked of them. It had been a time of hectic activity and heavy losses, particularly during the mid summer period, but the reintroduction of daylight operations demonstrated the Allies' dominance of enemy airspace, and prospects for survival were far greater than during the winter assault on Berlin and Germany's other major cities. 433 Squadron had acquitted itself well within the context of a rejuvenated 6 Group, and its losses, at thirty-five aircraft, were about average for the Group's squadrons. There was no mistaking the scent of victory in the air, but much remained to be done before the proud and tenacious enemy finally laid down his arms. Despite being stretched beyond their capacity to protect the entire Reich, the defenders would still manage on occasions to inflict a bloody nose upon the Command, and for some squadrons, the final four months of the bombing war would be very expensive. For 433 Squadron, however, losses would average just one per month, and they would not begin until February.

1945

Bomber Command planned an early start for operations on New Year's Day, but by the time the 5 Group crews had got away from their stations at around 08.00 heading for the Dortmund-Ems Canal, the New Year had already begun with a bang across the Channel. The Luftwaffe launched its ill-conceived and ultimately ill-fated Operation Bodenplatte, which involved its entire frontline strength of day fighters against Allied aircraft on the ground at the recently liberated airfields in France, Holland and Belgium. At first light, hundreds of BF109s and FW190s screamed across the hedgerows to deliver bombing and strafing attacks into the

teeth of the airfield flak defences, and those surviving this phase of the operation then had to run the gauntlet of Allied fighters to reach home. A very large number, around 250, failed to do so, and more than half of the pilots were killed, wounded or captured. This was a setback from which the Luftwaffe would never fully recover, although its nightfighter force remained intact, albeit short of experienced crews and supplies of aviation fuel. One of the bi-products of Operation Bodenplatte was to produce itchy trigger fingers among American flak gunners, and for the remainder of the day and night, anything flying within range was likely to be shot at. At least two RAF bombers fell victim in this way over Belgium that night.

6 Group began the New Year on the ground, and it was the night of the 2/3rd when it next ventured forth into battle. The target for the Group's Halifax squadrons was Ludwigshafen, for which it joined forces with 4 Group, while the Lancaster brigade teamed up with 1 and 3 Groups at Nuremberg. The aiming points at the former were again the two I.G.Farben chemicals factories, and both were put out of action, while other industrial premises and railway installations were damaged. F/S Batty's aircraft was attacked by a Focke-Wulf 190, but no damage was sustained or inflicted. The latter operation was also highly successful, and was the first decisive blow upon the birthplace of Nazism. More than four and a half thousand houses were destroyed, most of them apartment blocks, and four hundred industrial buildings were also reduced to rubble, while the death toll exceeded eighteen hundred. A modest seven aircraft were lost from the two raids, and 433 Squadron came through unscathed. For A Flight, this was to be the month's only operation, as it was now stood down to convert onto Lancasters. This left B Flight to carry on the war against Germany, at least for the first half of the month, after which, the following two weeks would see relatively little major activity. On the night of the 5/6th, over six hundred aircraft from 1, 4, 6 and 8 Groups attacked Hanover for the first time since the four raid series in the autumn of 1943. The bombing spread across the city, and destroyed almost five hundred buildings, most of them apartment blocks. This was one of those nights when the defenders made their presence felt, and thirty one aircraft failed to return, the majority of them Halifaxes. The target was at least spared F/L Paterson's bomb load, as he was forced back with a failed starboard-outer engine. F/S Batty was again singled out for attention by the enemy, this time a JU88, as was F/O Strelchuk, but neither captain reported damage to their respective aircraft.

On the following night, the same Groups put up almost five hundred aircraft for a raid on Hanau, a town to the east of Frankfurt. It contained an important railway junction as the principal objective, but the attack was basically of the area variety, and around 40% of the town's built-up area was destroyed. F/L Paterson's misfortunes continued when his escape hatch blew off, but it appears that he completed the operation, before landing at Tangmere short of fuel. On the 7/8th, Munich was left to the Lancaster brigade, while the Halifaxes remained at home. There they stayed until thirty-two of the type took part in a gardening expedition to the Baltic on the 12/13th. 424, 427, 429 and 433 Squadrons' particular allotment was Flensburg harbour, and a total of forty-four vegetables were planted. Twenty four hours later, 433 Squadron returned to the bombing war at Saarbrücken, where the railway yards provided the aiming point for almost 250 Halifaxes from 4 and 6 Groups. The attack was highly effective, and was completed for the loss of just one Halifax. On the 14/15th, 6 Group Halifaxes acted as the main force for an assault on the railway yards at Grevenbroich, a town

on the south-western edge of the Ruhr between Mönchengladbach and Cologne. Another highly efficient performance by the Group left the yards in disarray, and this time there were no losses. Other crews from the usual mining quartet returned to northern waters, and sowed another forty mines in the sea-lanes around Oslo. Two nights later, B Flight undertook 433 Squadron's final operation with Halifaxes, when attacking Magdeburg in what would soon become eastern Germany. In actual fact, the city lay only a short flying time beyond the Hanover/Brunswick region, which had always proved troublesome to the Command, and almost exactly a year earlier, it had been the target which claimed the first two 433 Squadron crews. On this night, 4 and 6 Groups provided the all-Halifax main force, and although seventeen of them were lost, the operation was considered successful, with an estimated 44% of the city's built-up area destroyed. The weather during the second half of the month was generally appalling, but it did not interrupt A Flight's progress towards operational status on the Lancaster, and it was declared ready to return to the fray on the 29th. B Flight was now stood down for three weeks, while A Flight prosecuted the war against Germany.

433 Squadron Lancasters went to war for the first time on the night of the 1/2nd of February, when contributing to a force of 382 Lancasters from 1, 6 and 8 Groups bound for the southern city of Ludwigshafen. Cloud cover forced the use of sky-markers, but most of the bombs fell within the city, destroying or seriously damaging nine hundred houses, and causing chaos within the railway yards. Six aircraft failed to return, and 433 Squadron sustained its first Lancaster casualty on this, its first operation with the type. NG460 was hit by flak over the target, but was not fatally damaged, and the A Flight commander, S/L Stinson DFC, was able to bring the Lancaster home to within miles of a safe landing. Once over Yorkshire, however, and while flying through cloud at three thousand feet, turbulence caused the pilot to lose control, and the aircraft crashed a few miles south of Skipton-on-Swale with five of the crew still on board. Only the bomb-aimer and a gunner had managed to bale out at two thousand feet to survive. It was a tragic loss of an experienced crew, who were all into the final third of their first tour, while S/L Stinson was on the sixth operation of his second.

The weather over Germany during the first week of February was generally cloudy, and this hampered operations. 433 Squadron's second Lancaster operation took place on the 2/3rd, when Wiesbaden hosted its first and only major attack of the war. Almost five hundred Lancasters from 1, 3, 6 and 8 Groups bombed through cloud, and left behind them a thousand buildings either destroyed or seriously damaged, and an equal number of people killed. Two nights later, Bonn was the objective for over two hundred aircraft from 4, 6 and 8 Groups, all but a handful of which were Halifaxes. Only twenty Lancasters were involved, and some of these were provided by 419 and 433 Squadrons. While outbound over the Belgian Ardennes, 433 Squadron's PA219 collided with KB787 of 419 Squadron in cloud, and both aircraft plunged to the ground. The previously mentioned F/L Mara was killed on this, his twenty first operation, and with him died the seven other occupants of the 433 Squadron Lancaster. Just one man survived from the 419 Squadron aircraft. The continuing advance by British ground forces on the German frontier near the Reichswald brought over seven hundred Bomber Command aircraft into the fray on the evening of the 7th. The 4 and 6 Group crews were briefed to attack the town of Goch, while 1 Group attended to Cleves, both operations supported by a strong Pathfinder element. The towns were now part of the enemy defensive

line about to be attacked by XXX Corps, but on this night Goch was sheltering below cloud with a base of five thousand feet. The Master Bomber brought the crews below this level, and the initial bombing was highly accurate. It was not long, however, before smoke concealed the aiming point, and the attack was called off before two-thirds of the 460-strong force had a chance to bomb. The following night was devoted largely to the German oil industry, but as the Wanne-Eickel main force was all-Halifax, the Porcupines sat this one out. Over the next four nights minor operations held sway, and it was not until the 13th that the crews prepared for their next foray. At briefings on the Lancaster stations, the target was revealed to be Dresden, an historic city close to Germany's frontier with Czechoslovakia. This was to be the first of the Churchill inspired series of attacks on Germany's eastern cities under Operation Thunderclap, and it would prove to be the most controversial bombing operation of the entire war. Dresden was not significant in industrial terms, but was perhaps important as a communications centre, with the eastern front so close. It was though, unquestionably a treasure trove of art and culture, and on a much larger scale than Augsburg, which had been consigned to the flames a year earlier. The population had been swelled by a massive influx of refugees fleeing from the advancing Red Army, and there seems to have existed a belief, that the Allies would never bomb Dresden.

The now familiar two-phase operation was opened by 5 Group using its low level visual marking technique, and once the Mosquitos had completed their part in the proceedings, 244 Lancasters delivered over eight hundred tons of bombs. A layer of cloud interfered with the accuracy of this opening phase, which was only partially successful, but fires gained hold, and they would act as a beacon to more than five hundred 1, 3, 6 and 8 Group Lancasters following three hours behind. By the time they arrived over the city, the skies had cleared, and standard Pathfinder marking preceded the dropping of a further eighteen hundred tons of bombs. This set off the same chain of events that had devastated Hamburg, Kassel, Darmstadt, and other major cities to a lesser extent since July 1943. A firestorm erupted of gigantic proportions, in which an estimated fifty thousand people lost their lives, although some believe the death toll to be substantially higher. The defences were light, and a simultaneous attack by Halifaxes on the oil refinery at nearby Böhlen would have helped to dilute any nightfighter activity. In the event, eight Lancasters were lost, two of these as the result of a collision over England while outbound, and 433 Squadron came through unscathed, as did 6 Group as a whole. On the following morning, the American 8th Air Force carried out its own attack, which, but for bad weather, would have preceded the RAF effort. On the following night, Thunderclap continued at Chemnitz, only this time with a large contingent of Halifaxes. Cloud dictated the use of skymarking, and the bombing was consequently scattered across the city and into open country. Skipton-on-Swale dispatched Lancasters from 433 and 424 Squadrons on mining sorties to Pomerania Bay on this night, and one of the latter failed to return.

There was more gardening to be done by 433 Squadron on the 15/16th, this time in Oslo Fjord, and a squadron contingent revisited the area again on the 23/24th and 24/25th. In between, on the 20/21st, the Command carried out its final heavy night raid on Dortmund. Over five hundred Lancasters from 1, 3, 6 and 8 Groups attacked the city's southern half, but the loss of fourteen aircraft demonstrated that the defensive screen around the Ruhr could still be

effective. Twenty-four hours later, the “Porkies” participated in the last heavy raid of the war on Duisburg, for which 1 and 6 Groups provided the main force element. The highly destructive attack was concluded for the loss of ten aircraft, a few of which came down behind Allied lines. The final operation of the month for 433 Squadron was its only daylight foray, and this took it to Mainz on the afternoon of the 27th in company with over four hundred other aircraft from 4, 6 and 8 Groups. Although the crews were prevented by cloud from seeing the effects of the bombing, this was the most destructive raid of the war on this city. Over 5,600 buildings were destroyed, many of them in the historic Altstadt, but the industrial districts were also hit, and severe damage was inflicted. More than eleven hundred people lost their lives, and this amounted to almost half of the total number of air raid victims in the city throughout the war. Despite the fact that the war was almost over, all operations taken into account, 6 Group had averaged one per day during February. It would be only slightly less hectic during March. 433 Squadron was by this time back up to full strength after B Flight completed its conversion training on Lancasters.

The new month began with 1, 6 and 8 Groups carrying out the final operation of the war against Mannheim on the afternoon of the 1st. Complete cloud cover prevented an assessment of the results, and the city authorities had by now ceased to accurately record the damage from individual raids. Cologne underwent its final ordeal by bombing on the morning of the 2nd, in what was intended to be a two-phase assault. The first wave of seven hundred aircraft included the 433 Squadron element, and further devastation was inflicted upon the Rhineland Capital. It was, however, spared most of the second wave bombs, which were to have been delivered by 3 Group using G-H. Problems with one of the transmitting stations in England allowed only fifteen aircraft to bomb before the remainder were sent home. Four days later, the city fell to American ground forces. A small mining operation took place in Oslo Fjord later on the 2/3rd, in which a number of 433 Squadron aircraft took part. Shortly after their return, Skipton-on-Swale was visited by a JU88 intruder, which caused no casualties, but damaged a number of buildings and aircraft. Having escaped serious damage on the night after Dresden, Chemnitz hosted its second assault under Operation Thunderclap on the night of the 5/6th. Conditions in north Yorkshire and County Durham were not ideal, and five 6 Group aircraft fell victim to the icy conditions, while two others were lost to a collision, and all before crossing the English coast on the way out. The 433 Squadron participants got away without undue difficulty, and contributed to a successful operation, in which the city’s central and southern districts were severely afflicted by fire, and a number of important war industry factories were destroyed. Bomber losses were heavy for the period, amounting to twenty-two aircraft, but 433 Squadron welcomed all of its crews home.

After a night’s rest, more than five hundred Lancasters from 1, 3, 6 and 8 Groups set out for Dessau, a town on the south bank of the Elbe, south-east of Magdeburg. It had never been attacked before, and lay deep within a region of Germany from Hanover eastwards, where losses had tended to be relatively high. Although few details came out of Germany concerning this attack, it is known that the town was left devastated, but at a cost of eighteen Lancasters. Other major raids that night to Hemmingstedt and the oil centre of Harburg, together with numerous minor operations, brought the total number of sorties to almost thirteen hundred, and in an echo of the past, forty one aircraft failed to return. 433 Squadron again came

through without casualty, and was back on duty twenty four hours later for an attack on Hamburg, where the new Type XXI U-Boats were under construction. The predominately Halifax operation took place through complete cloud cover, and lacked the accuracy necessary to hit the shipyards effectively. Meanwhile, nineteen aircraft from 6 Group, including a 433 squadron contingent, set off to lay mines in the waters around Heligoland, and all returned safely. An all-time record was set on the 11th, when 1079 aircraft took off in the late morning to deliver the final assault of the war on Essen. The results could not be observed through the complete cloud cover, but more than 4,600 tons of bombs left the tortured city paralysed until the arrival of American ground forces shortly afterwards. This new 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 attack Dortmund for the final time. More than 4,800 tons of bombs, another new record, rained down through the cloud cover to leave the city a disfunctionate ruin awaiting capture. These two massive blows involving a total of 2,187 aircraft cost the Command just five Lancasters, but not one from Skipton-on-Swale. However, that night, nineteen aircraft were sent mining in the Kattegat, and three failed to return. Among them was 433 Squadron's NG233, which crashed into the sea with the loss of all on board. At the end of May, the body of the bomb-aimer, F/O Plante, drifted onto a Skandinavian shore, and was laid to rest in the local cemetery. F/O Farrell and the remainder of his crew are commemorated on the Runnymede Memorial.

As the enemy tried to defend its south-western border, the frontier town of Zweibrücken was attacked on the 14/15th by 6 Group with a Pathfinder element in support. The intention was to seal up this previously unbombed town to prevent the passage of troops and equipment to the nearby front. For once the crews were able to see their objective, and a very effective raid ensued, which left every public building and 80% of the houses destroyed or damaged, while not a single bomber was lost. Later on the 15th, 6 Group's Halifax brigade joined 4 Group to attack oil refineries at Bottrop and Castrop-Rauxel. Later still, the Lancaster brigade also teamed up with elements of 4 and 8 Groups to deliver an area assault on Hagen in the Ruhr. Central and eastern districts wilted under the barrage, and more than fourteen hundred separate fires were recorded. All of the 433 Squadron contingent returned safely, the crew of Q-Queenie claiming a ME410 nightfighter destroyed. Nuremberg was raided for the last time on the 16/17th, by an all-Lancaster force from 1 and 8 Groups. Massive damage resulted, but this city, which had been the target on the Command's blackest night of the war, claimed another twenty-four aircraft, all of them from 1 Group. At the same time, 5 Group delivered the one and only raid of the war on Würzburg, and in seventeen horrific minutes, destroyed 89% of its built-up area, and killed somewhere in excess of four thousand people. 433 Squadron sent some crews gardening on this night off Heligoland, and there were no losses. The next target for 6 Group, on the 18/19th, was Witten, a steel town a few miles north-west of Hagen in the Ruhr. Halifaxes from 4 and 6 Groups made up the bulk of the 320 strong force, and a post-war survey suggests that they destroyed 62% of the town's built-up area, while severely damaging two steelworks. Hanau, meanwhile, was being pounded to destruction by 1 and 8 Groups in an attack, which left around two thousand people killed.

The final third of the month began for 6 Group's Lancaster squadrons with a raid on an oil refinery at Hemmingstedt near Germany's north-western coast. It was a joint effort with

elements of 1 and 8 Groups, and no more oil was produced before the end of hostilities. The Group's Halifaxes operated on the following afternoon against railway yards at Rheine, close to Germany's border with northern Holland. After their day off, 6 Group's Lancaster crews were back in the briefing rooms early on the 22nd in preparation for a foray into the Hanover/Brunswick region of north-central Germany. It was to be another joint effort with 1 and 8 Groups against railway yards in the town of Hildesheim, which had not previously been attacked. The 220 strong force took off shortly before noon, and as generally happened at a German target, the bombing was not confined to the railway area, but spread across the town itself. 3,300 apartment blocks were destroyed or seriously damaged, and more than sixteen hundred people were killed for the loss of four aircraft. The Group's Halifaxes were also in action on this day against railway and canal installations at Dorsten, and two days later flattened the nearby small town of Gladbeck. Both these locations were just north of the Ruhr, and on the route taken by 617 Squadron for the Dams raid. 6 Group Lancasters were also over Germany on the 24th, attacking the Mathias Stinnes benzol plant at Bottrop, before returning to the fray in the early morning of the 25th for a daylight raid on Hanover in company with elements of 1 and 8 Groups. Remarkably, despite heavy flak, which damaged a number of 433 squadron aircraft, only a single 1 Group Lancaster failed to return from the last mentioned operation, and this was brought down by friendly bombs.

After such a busy schedule, the 6 Group crews welcomed a six day break from operations, which came to an end early on the 31st, when both Lancaster and Halifax squadrons joined forces with 1 and 8 Groups to attack the Blohm & Voss shipyard at Hamburg. This, as mentioned earlier, was where the new Type XXI U-Boats were under construction, and it was an attempt to rectify the failure earlier in the month. As had been the case then, however, complete cloud cover caused the attack to be spread across the southern half of the city, and nearby Harburg, and extensive damage was inflicted upon housing, industry and communications. The anticipated hot reception included the presence of ME262 jet fighters, and these accounted for a number of the eleven missing aircraft, eight of which were from 6 Group. The Canadians were at the rear of the bomber stream, and had been a few minutes late on target, thus losing the protection of the fighter escort, which had by now turned for home. The 433 Squadron element of ten Lancasters seemed to attract the enemy's attention, and sixteen combats were recorded by Porcupine crews, among them those of P/O Jensen, F/O Otton, W/O Smyth, the newly commissioned P/O Batty, and the recently promoted F/L Strelchuk. The last mentioned claimed to have inflicted damage on their assailant. Such was the ferocity of the enemy onslaught, that the flight engineers were pressed into service as front gunners. S/L Holmes's Lancaster endured five attacks by two jet fighters, one of which was claimed as destroyed by the gunners, W/Os Ash and Ruthig, and both men were later commissioned and decorated. F/O Pleiter's Lancaster was damaged by flak and possibly also by a jet fighter, and remarkably, was one of a very few, if not the only one, to arrive home not completely unscathed. This was the last time that Bomber Command was to sustain a double figure loss.

The final month of the bombing war was four days old before 6 Group opened its account. The previous two days had been emotionally exhausting for 433 Squadron, however, characterized by briefings, hours of standing-by awaiting the go signal and scrubs, on one

occasion as the crews prepared for take-off. The night of the 4/5th would bring almost twelve hundred sorties by Bomber Command aircraft, the majority of them devoted to three oil refineries in various regions of Germany. The Group's Halifax brigade joined forces with 4 Group to provide the main force at Harburg, while 3 and 6 Group Lancasters performed the same role at Leuna, a little west of Leipzig, and 1 Group went to Lützendorf. The 433 Squadron contingent flew to Leuna along with over three hundred other aircraft, and found the target to be cloud covered. The ensuing bombing was scattered, very little damage was done to the refinery, and a great deal of effort was expended for scant return. The last heavy raid of the war on Hamburg was delivered on the night of the 8/9th, hard on the heels of an American attack earlier in the day. The target was again the shipyards, but partial cloud cover compromised accuracy, and the damage revealed by photographic reconnaissance could not be allocated with any certainty to the RAF effort. In the early afternoon of the 10th, 433 Squadron crews took off from Skipton-on-Swale, and headed eastwards to Leipzig as part of a 6 Group attack on the Mockau railway yards. As PB903 was approaching the aiming point, it was hit by predicted flak, and the starboard-inner engine caught fire. Observers saw the flames quelled, but then a small explosion threw the Lancaster onto its back, and there was no recovery. F/O Grisdale and his six crew mates were killed, and their's were the last names to be entered into the 433 Squadron wartime Roll of Honour.

Heavy bombers went to Kiel for the last time on the 13/14th, in an operation entrusted to 3, 6 and 8 Groups. The town's U-Boat yards were the main attraction, but in a disappointing attack, most of the bombing fell two miles from the port area. 6 Group was not involved in the final area bombing raid of the war, which was delivered upon Potsdam on the 14/15th, and was, in fact, the first time since March 1944 that a raid had taken place within the Berlin defence zone. On the night of the 16/17th, two forces headed towards south-eastern Germany. That belonging to 5 Group continued across the Czech frontier to bomb the railway yards at Pilsen, while 6 and 8 Group Lancasters hit a similar target at Schwandorf, and both operations were highly effective. During the morning and afternoon of the 18th, more than nine hundred aircraft, including 6 Group's Halifax brigade, paid a visit to the island of Heligoland, and left it with the appearance of a luna landscape. In preparation for an assault by the British XXX Corps on Bremen, the city's south-eastern suburbs were earmarked for attack by over seven hundred aircraft from 1, 3, 6 and 8 Groups on the 22nd. By the time that the 1 and 6 Group aircraft were approaching the aiming point, cloud had moved in, and combined with the smoke and dust to obscure the target. The Master Bomber had no option other to abandon the rest of the attack, and the remaining bombs were brought home. In addition to the bombing operations mentioned, 433 Squadron also continued its gardening activities during the month, and by war's end, more than a quarter of its overall operations would be of the horticultural variety.

The 25th was the final day on which RAF heavy bombers carried out offensive operations. The day began with an all-Lancaster assault on the SS barracks at Hitler's Eaglesnest retreat at Berchtesgaden in the Bavarian mountains, undertaken by 1, 5 and 8 Groups. In the afternoon, 4, 6 and 8 Groups were sent to the island of Wangerooge in the German Frisians, to bomb the heavy gun emplacements barring the approaches to the north German ports. The operation turned into a tragedy for 6 Group, as four of its aircraft were involved in collisions

in the target area, and all twenty-eight occupants lost their lives. 433 Squadron came through unscathed to complete a very creditable contribution to Bomber Command's offensive, and could point with pride to the fact that 90% of its sorties had been completed successfully. During the course of its 204 bombing and mining operations a total of 7,486 tons of ordnance was delivered, six enemy aircraft were shot down by the squadron's gunners, and two more were claimed as probables. 160 decorations were won, made up of 132 DFCs, 2 Bars to DFC, 9 DFMs, 1 BEM, 14 MiDs, 1 US Purple Heart and 1 US Air Medal. 174 aircrew were killed in 433 Squadron aircraft, and two members of ground crew also lost their lives.

Having concluded its offensive operations, 433 Squadron spent the 8th to the 10th of May participating in Operation Exodus, the repatriation of allied prisoners of war to the UK. On the 1st of August, the long-serving W/C Tambling handed over temporary command of the squadron to S/L Vallance. It was he who oversaw the squadron's transfer to 1 Group RAF for the transportation of Allied troops from Italy under Operation Dodge. He in turn was succeeded by the seasoned former commanding officer of 88 and 434 Squadrons, W/C Harris, on the 25th of September, and it was he who presided over the squadron's disbandment on the 15th of October 1945, at which point Skipton-on-Swale closed down.

I am indebted to Joe Descent, a former member of 433 Squadron aircrew and currently the Squadron Association secretary, for kindly contributing much of the information contained within this profile. Sadly and inevitably the membership of the Association is dwindling, and as the current 433 Squadron is French, there is little contact with the Second World War veterans.

433 SQUADRON

STATIONS

SKIPTON-ON-SWALE

25.09.43. to 30.08.45.

COMMANDING OFFICERS

WING COMMANDER C B SINTON DFC

09.11.43. to 30.05.44.

WING COMMANDER A J LEWINGTON

31.05.44. to 05.11.44.

WING COMMANDER G A TAMBLING

06.11.44. to 01.08.45.

AIRCRAFT

HALIFAX III

11.43. to 01.45.

LANCASTER I/III

01.45. to 10.45.

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SECTION 2



OPERATIONAL RECORD

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OPERATIONAL RECORD

OPERATIONS	SORTIES	AIRCRAFT LOSSES	% LOSSES
204	2316	31	1.3

CATEGORY OF OPERATIONS

BOMBING	MINING
151	53

HALIFAX

OPERATIONS	SORTIES	AIRCRAFT LOSSES	% LOSSES
162	1926	28	1.5

CATEGORY OF OPERATIONS

BOMBING	MINING
123	39

LANCASTER

OPERATIONS	SORTIES	AIRCRAFT LOSSES	% LOSSES
42	390	3	0.8

CATEGORY OF OPERATIONS

BOMBING	MINING
28	14

4 Halifaxes and 1 Lancaster were lost in crashes in the UK

TABLE OF STATISTICS

Out of 30 Halifax squadrons.

(Excluding 100 Group)

15th equal (with 425Sqn) highest number of overall Halifax operations in Bomber Command.

20th highest number of Halifax sorties in Bomber Command.

21st highest number of Halifax operational losses in Bomber Command.

Out of 59 Lancaster squadrons

53rd highest number of Lancaster operations in Bomber Command.

54th highest number of Lancaster sorties in Bomber Command.

56th highest number of Lancaster operational losses in Bomber Command.

Out of 15 squadrons in 6 Group.

8th highest number of overall operations in 6 Group.

13th highest number of sorties in 6 Group.

13th highest number of aircraft operational losses in 6 Group.

Out of 15 Halifax squadrons in 6 Group.

4th equal (with 425Sqn) highest number of Halifax operations in 6 Group.

8th highest number of Halifax sorties in 8 Group.

8th equal (with 425Sqn) highest number of Halifax operational losses in 6 Group.

Out of 11 Lancaster squadrons in 6 Group.

6th equal (with 424Sqn) highest number of Lancaster operations in 6 Group.

7th highest number of Lancaster sorties in 6 Group.

9th highest number of Lancaster operational losses in 6 Group.

SECTION 3



AIRCRAFT LISTING

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433 SQUADRON.

HALIFAX.

From November 1943 to January 1945.

HX230 BM-P	FTR Leipzig 19/20.2.44.
HX245	Crashed on take-off from Skipton-on-Swale while training 19.12.43.
HX265 BM-D	Ditched off north-east coast on return from Berlin 29.1.44.
HX268 BM-A	To 1659CU.
HX269 BM-J	FTR Schweinfurt 24/25.2.44.
HX272 BM-N	FTR Nuremberg 30/31.3.44.
HX275 BM-S	Abandoned on return from Bois de Cassan 4.8.44.
HX277	Destroyed on the ground at Skipton-on-Swale when HX245 crashed 19.12.43.
HX280 BM-O	To 1659CU.
HX281 BM-H	Abandoned over Yorkshire on return from Berlin 29.1.44.
HX282 BM-K	FTR Frankfurt 18/19.3.44.
HX283 BM-R	FTR Magdeburg 21/22.1.44.
HX284 BM-B	FTR Berlin 24/25.3.44.
HX285 BM-E	Crashed in Yorkshire on return from Berlin 29.1.44.
HX287 BM-U	FTR Noisy-le-Sec 18/19.4.44.
HX288 BM-F	Crashed on landing at Skipton-on-Swale on return from Düsseldorf 22/23.4.44.
HX289 BM-T	Ditched in North Sea on return from Magdeburg 22.1.44.
HX290 BM-V	To 1659CU.
HX291 BM-W	FTR Düsseldorf 22/23.4.44.
HX292 BM-G	To 1659CU.
HX352	To 429Sqn.
HX353 BM-X	FTR Villeneuve-St-Georges 4/5.7.44.
LV797 BM-L	FTR Berlin 30/31.1.44.
LV839	To 517Sqn.
LV840 BM-E	FTR Düsseldorf 22/23.4.44.
LV841 BM-H	FTR Berlin 24/25.3.44.
LV842 BM-D	To 517Sqn.
LV871 BM-M	FTR Schweinfurt 24/25.2.44.
LV911 BM-I	Crashed on take-off from Skipton-on-Swale when bound for Stuttgart 25.7.44.
LV935	To 1659CU.
LV938	To 427Sqn.
LV941	To 429Sqn.
LV947	From 424Sqn. To 76Sqn.
LV966 BM-P	FTR Cambrai 14/15.6.44.
LV967 BM-B	To 429Sqn.
LV971 BM-N	FTR from Noisy-le-Sec 19.4.44.
LV972	To 1666CU.

LV990 BM-J FTR Düsseldorf 22/23.4.44.
LV992 To 518Sqn.
LW115 BM-U Broke-up over the Isle Of Man during training 14.7.44.
LW120 BM-E FTR Villeneuve-St-Georges 4/5.7.44.
LW122 To 415Sqn.
LW123 BM-W FTR Villeneuve-St-Georges 4/5.7.44.
LW129 BM-G FTR Dortmund 6/7.10.44.
LW194 To 424Sqn.
LW361 BM-R To 1659CU.
LW368 BM-L To 1659CU.
LW370 To 424Sqn.
LW374
MZ284 BM-T From 426Sqn. FTR Castrop-Rauxel 21/22.11.44.
MZ285 BM-H From 426Sqn. To 429Sqn.
MZ417 To 425Sqn.
MZ419 To 425Sqn.
MZ425 BM-L To 425Sqn.
MZ458 To 424Sqn.
MZ464 To 10Sqn.
MZ807 BM-C From 434Sqn. FTR Hagen 2/3.12.44.
MZ808 BM-P From 434Sqn. FTR from mining sortie 17.8.44.
MZ815 To 425Sqn.
MZ816 BM-W FTR Hamburg 28/29.7.44.
MZ818 To 158Sqn.
MZ828 BM-H Crashed in Yorkshire while training 5.8.44.
MZ845 To 425Sqn.
MZ857 BM-N To 187Sqn.
MZ863 BM-I FTR from mining sortie 17.8.44.
MZ869
MZ872 BM-Q To 429Sqn.
MZ879 BM-O FTR Ille de Cezembre 31.8.44.
MZ883 BM-S
MZ895 Destroyed by fire during refueling at Skipton-on-Swale 8.8.44.
MZ899 BM-D FTR from mining sortie 17.8.44.
MZ905 BM-J From 427Sqn. To 76Sqn.
MZ909 BM-H To 347Sqn.
MZ910 To 420Sqn.
NP935 To 415Sqn.
NP936 BM-O From 424Sqn. Returned to 424Sqn.
NP937 From 424Sqn. To 425Sqn.
NP944 BM-M To EANS.
NP948 To EANS.
NP949 BM-R FTR Castrop-Rauxel 21/22.11.44.
NP992 BM-F FTR Bochum 4/5.11.44.
NR117 To 420Sqn.

NR120 BM-A To 77Sqn.
NR121 To 431Sqn.
NR122 To 431Sqn.
NR123 To 431Sqn.
NR135 To 420Sqn.
NR136 BM-R To 425Sqn.
NR137 BM-G To 425Sqn.
PN229

LANCASTER. From January 1945.

ME375 BM-D
ME457 BM-U
NF930 From 50Sqn.
NG232 BM-H
NG233 BM-E FTR from mining sortie 12/13.3.45.
NG441 BM-L
NG459 BM-K
NG460 BM-A Abandoned over Yorkshire on return from Ludwigshafen 1/2.2.45.
NG493
NG496 BM-N
NG498 BM-T
NN779 BM-J
PA219 BM-W/M FTR Bonn 4/5.2.45.
PA327
PB893 BM-G
PB903 BM-F FTR Leipzig 10.4.45.
PB908 BM-C
RA505 BM-K
RA506 BM-O
RA509 BM-P
RA511 BM-Q
RA512 BM-S
RA513 BM-Y
RF149 BM-A
RF150 To 424Sqn.
SW273 BM-U/V

HEAVIEST SINGLE LOSS.

28/29.01.44. Berlin. 1 Halifax ditched, 2 crashed on return.
22/23.04.44. Düsseldorf. 3 Halifaxes FTR.
04/05.07.44. Villeneuve-St-Georges. 3 Halifaxes FTR.

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SECTION 4



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.
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.



SECTION 5



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Most of the figures used in the statistics section of this work, have been drawn from The Bomber Command War Diaries by Martin Middlebrook and Chris Everitt, and I am indebted to Martin Middlebrook for allowing me to use them.

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SECTION 6



STOCK LIST

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105 106 115 139 144 149 150 153 156 189
207 214 218 405 408 419 433 460 467 550
578 617 619 622 625 626 627**

AVAILABLE SOON

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**MOSQUITO SQUADRONS
OF THE PATH FINDER FORCE
and
OPERATIONAL STATISTICS
OF
BOMBER COMMAND AND ITS
SQUADRONS**

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