

a/c straightened out in front of me and opened up. At 150 yds I fired a 4-6 second burst and observed numerous strikes on the fuselage and port wing. The port nacelle began to throw considerable white smoke. The enemy a/c was increasing the range fairly rapidly. I continued firing long bursts and obtained more strikes at 5-600 yds. When my gyro sight was at maximum range I aimed above the e/a and although the e/a was at approximately 1000 yds believe I obtained 1 or 2 more strikes. At this time the e/a was diving on a course of approximately 70°. At about 10,000' I ran out of ammunition but continued to follow using cine gun. At about 8,000' the port nacelle of a/c was throwing considerable white smoke and I observed the e/a do a slow half roll to starboard and a parachute open. The e/a crashed approximately 6-8 miles E. of Aachen.⁵⁵

Slower than the German jets in any case, Collier's Spitfire was further handicapped by his inability to jettison his external fuel tank and, since jets were normally reserved for the most experienced German pilots, one can only speculate what had so distracted the enemy as to enable Collier to get so close in the first place. An hour or so later 'the long queue of airmen waiting for Xmas dinner [on B 88, at Heesch, in Holland] bit the dust as one man when an Me 262 was clobbered by the cannon fire of F/L Jack Boyle of 411 Squadron right over base.' In his case, Boyle was just pulling out of a steep dive, in which he had built up 'excessive speed,' allowing him to keep up with the marauding Me 262 long enough to shoot it down. The jet crashed about five miles from the strip.⁵⁶

Piston-engined aircraft were also in evidence and, in all, RCAF fighter pilots claimed eighteen destroyed that Christmas weekend, while losing eleven of their own. With the Ardennes offensive in full swing, the Luftwaffe was trying to protect the railways that German ground commanders needed to resupply their spearheads; and even the Typhoons of 439 Squadron, which so far had only one enemy aircraft to their credit, shot down two more on 29 December. For 126 Wing, the 29th proved 'a day of many highlights,' with eleven enemy shot down, five of them credited to a single pilot, Flight Lieutenant Richard Audet.⁵⁷

I was leading Yellow section of 411 Squadron in the Rheine/Osnabruck area when Control reported Huns at Rheine and the Squadron turned in that direction. An Me 262 was sighted and just at that time I spotted 12 e/a on our starboard side at 2 o'clock. These turned out to be mixture of approximately 4 Me 109s and 8 FW 190s.

1st Combat

I attacked an Me 109 which was the last a/c in the formation of about 12 all flying line astern. At approximately 200 yards and 30° to starboard at 10,000 feet I opened fire and saw strikes all over the fuselage and wing roots. The 109 burst into flames on the starboard side of the fuselage only, and trailed intense black smoke. I then broke off my attack ...

2nd Combat

After the first attack I went around in a defensive circle at about 8,400 feet until I spotted an FW 190 which I immediately attacked from 250 yards down to 100 yards and from 30° to line astern I saw strikes over cockpit and to the rear of the fuselage, it burst into flames from the engine back and as I passed very close over top of it I saw the pilot slumped over in his cockpit, which was also in flames ...

3rd Combat

My third attack followed immediately on the 2nd. I followed what I believe was an Me 109 in a slight dive. He then climbed sharply and his coupe top flew off about 3 to 4,000 feet. I then gave a very short burst from about 300 yards and line astern and his aircraft whipped downwards in a dive. The pilot attempted or did bale out. I saw a black object on the edge of the cockpit but his chute ripped to shreds. I then took cine shots of his a/c going to the ground and the bits of parachute floating around. I saw this aircraft hit and smash into many flaming pieces on the ground. I do not remember any strikes on this aircraft. The Browning [machine-gun] button only may have been pressed.

4th Combat

I spotted an FW 190 being pursued at about 5,000' by a Spitfire which was in turn pursued by an FW 190. I called this yellow section pilot to break, and attacked the 190 up his rear. The fight went downward in a steep dive. When I was about 250 yards and line astern of this 190 I opened fire, there were many strikes on the length of the fuselage and it immediately burst into flames. I saw this FW 190 go straight into the ground and burn.

5th Combat

Several minutes later while attempting to form my section up again I spotted an FW 190 from 4,000', he was at about 2,000'. I dived down on him and attempted a head-on attack. I slowed down to wait for the 190 to fly in range. At about 200 yards and 20° I gave a very short burst, but couldn't see any strikes. This a/c flicked violently, and continued to do so until he crashed into the ground.⁵⁸

No other RCAF pilot, nor any other pilot of Second TAF, ever shot down five aircraft in a single sortie – but many of the circumstances surrounding Audet's victories were typical of aerial combat in the last year of the war. In fifty-two missions after his arrival on the Continent in mid-September he had engaged the enemy only three times, and those without success. As with most other Spitfire pilots, his days had been spent on uneventful patrols and interdiction missions – some of the latter on dive-bombing runs against railway lines; but by 22 January, less than a month after his first victory, Audet had accumulated a total of ten-and-a-half enemy aircraft destroyed in the air, all of them

fighters, one of them a jet. Then, with the Luftwaffe entering another recovery stage in its operational cycle, Audet's opportunities, like those of the RCAF as a whole, dried up. Tragically – but also all too typically – he was killed by Flak on 3 March while attacking a railway siding.⁵⁹

Those who became prisoners of war were more fortunate, but gliding to earth under a parachute was no guarantee of safety, as Hedley Everard, shot down on Christmas Eve, could well attest. After capture and interrogation, he was moved to more permanent facilities, but the journey held dangers of its own.

It was very dark by now as the vehicle lumbered down some secondary tree lined roads. In the distance ahead, I saw the glow of fires, and as we approached and stopped, I realized that it was the burning remains of a military convoy. My spirits sank as I heard from the shouts of the surviving truck drivers that they had been hit by rocket-firing Typhoon fighter bombers just before dusk.

The anger of my guards was evident, as I was made to dismount and marched into the midst of the dirty, disheveled survivors. Even without being told by my armed escort, these people recognized me as one of the airborne destroyers of their friends searing in their vehicles. And to me, this carnage, now seen at close range, was what I had seen many times through my gunsights during repeated strafing attacks. These German convoys, like their trains, were heavily defended with anti-aircraft guns and we also suffered heavy casualties and damage in our interdiction sorties ...

For reasons I will never know, the angry murmurs from this rag-tag group slowly subsided. They stared at me, some with scowls, some with quiet hatred, others looked away. I can only guess that my burned face, which had recently begun to drip, must have conveyed, that I too, had been punished by fire, and that we were all living in hell.⁶⁰

Everard eventually wound up joining nine other aircrew, who had baled out of heavy bombers.

Soon we were led out, arranged in pairs then marched up the street with two guards forward and two to the rear. From whispered conversation I knew we were in Dusseldorf. As we neared the main railway station the pedestrian traffic increased since no vehicles could manoeuvre in the rubble-strewn streets. This situation became extremely dangerous when the taunts and jeers of the citizens turned into a barrage of stones. One Canadian informed me that the city had been his bombing target the previous night, and hence the angry crowd. When the guards were struck by the thrown debris, they levelled their automatics at the people and we were hustled off into a room in the relatively warm station cellar. It is a wonder that we were not abandoned by the guards to the angry mob, some of whom may have lost loved ones in the previous night's bombardment.⁶¹

Meanwhile, the Luftwaffe was accumulating as many fighter aircraft as it could for one last, desperate, ill-considered, gamble. At first light on 1 January 1945 a fighter force of some thousand machines (and pilots) set out to attack

eleven major Allied airfields in an attempt to restore some kind of balance to the aerial battlefields of the Western Front. A high proportion of the pilots were novices, fresh from underfuelled flying training schools, but if they could catch enough of the Allied tactical air forces on the ground, and not lose too many machines in doing so, then they might yet achieve a notable victory. The airfields in question were excellent targets, for atrocious weather and transportation difficulties had forced British and American air formations to concentrate their resources on facilities that had permanent runways, while the fields themselves were familiar to many German leaders who had been flying out of them themselves only a little time before.⁶² Three of these targets, Eindhoven, Heesch, and Evère, were homes to RCAF wings.

Two of the latter, Nos 39 and 143, were based at Eindhoven, which was to suffer severely in Fall Bodenplatte. Targeted by 3 (Udet) Jagdgeschwader, Canadian Spitfire and Typhoon pilots found themselves the objects of massed and determined ground attacks for the first – and last – time in the war. They were taken completely by surprise, with eight Typhoons from each of Nos 438 and 440 Squadrons lined up for takeoff. Two that managed to get into the air were shot down by the swarming German fighters; the other fourteen were shot to pieces on the ground, one pilot managing to escape from his aircraft and take shelter in the dispersal building, though injured by flying glass. Three pilots from the Typhoon wing were killed. Having disposed of all the machines on the runway, the attackers circled and strafed the base for over twenty minutes, their main opposition coming from three squadrons of RAF regiment anti-aircraft gunners.⁶³

Groundcrew also fought back, one of them Sergeant W.L. Large, of 438 Squadron.

I was down the road from dispersal waiting to see the Sqn take off when I saw a number of e[nemy]/a[ircraft] making an attack on the airfield. I first thought this was a hit and run raid, but after the second and third wave had passed over and I saw e[nemy]/a[ircraft] circle the field and continue their attacks from out of the sun, I figured they were playing for keeps and therefore hurried back to dispersal where our Bren guns were kept. There I saw F/Sgt McGee and we decided to take a whack at anything flying over the dispersal. We each took a Bren gun and two boxes of clips and stood outside the dispersal door and waited for any Jerry who came within range ... One aircraft coming from the south turned off the runway and made a steep climbing turn about 120 yards away from us at a height of not more than forty feet. We both fired, each emptying a full magazine at him. We saw strikes down the engine cowling in the direction of the cockpit and saw small pieces fall off.⁶⁴

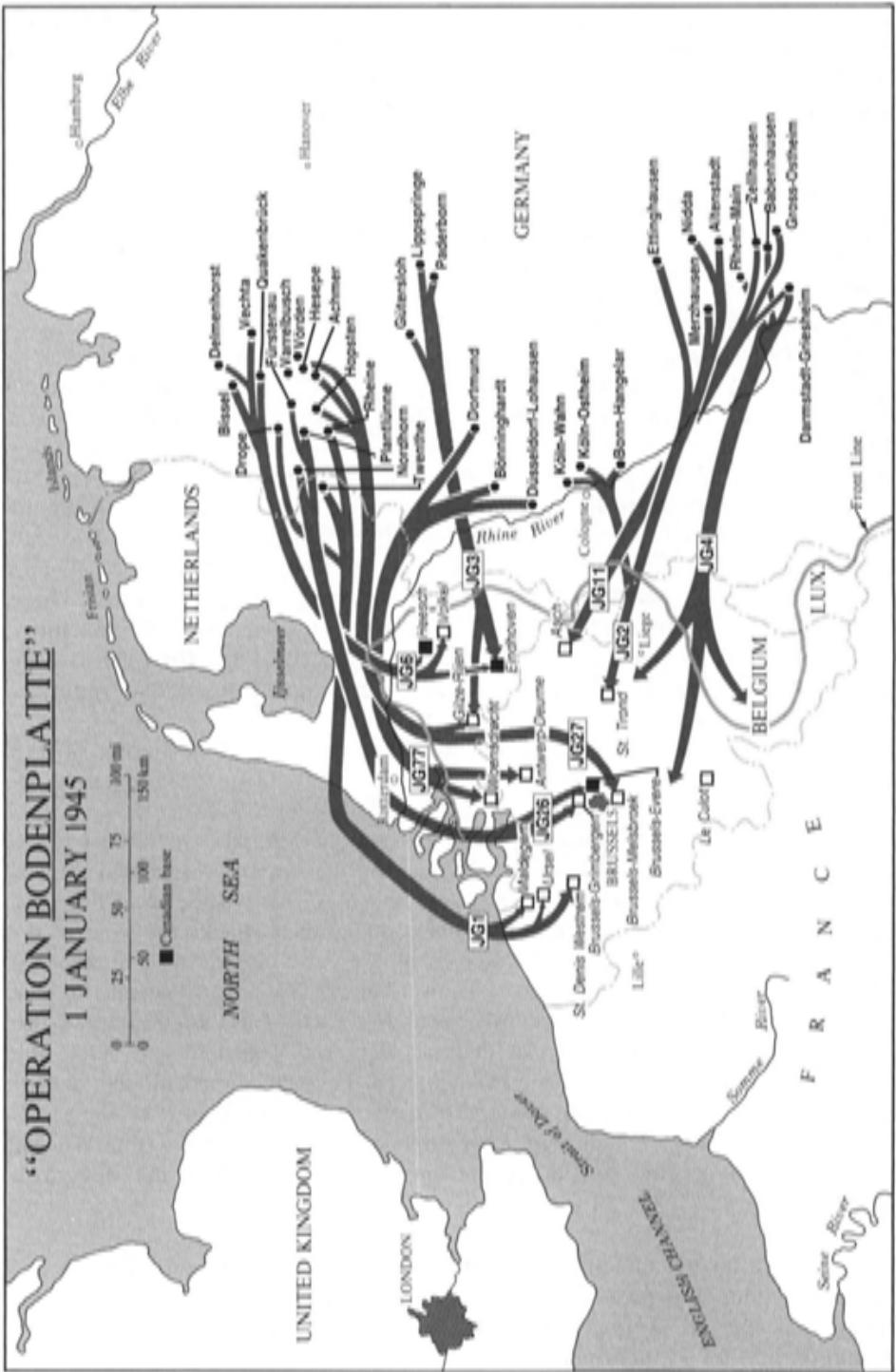
Three days after the attack a burnt-out FW 190 was discovered near the airfield, sufficient evidence to give Large and McGee credit for one enemy machine destroyed. The attackers lost ten pilots killed or missing and six captured, but left Eindhoven a shambles; thirteen were dead and dozens wounded, thirty-one aircraft were left burning or shot-up and many buildings

“OPERATION BODENPLATTE”

1 JANUARY 1945

0 25 50 75 100 125 mi
0 40 80 120 160 km

■ Canadian base



Reproduced by Mapping and Charting Establishment.

© Compiled and drawn by the Directorate of History.

damaged, while several bomb and petrol dumps added flames and explosions to the general confusion.⁶⁵

At Heesch, from which 126 Wing was operating, German fighters caught ten Spitfires of No 401 Squadron lining up for takeoff; but they all managed to get into the air and force their opponents into confused dogfighting in which the Canadians claimed six enemy aircraft destroyed without loss. Other squadrons, which had taken off some minutes before the attack and been recalled by radio, accounted for many more. In all, 126 Wing claimed nineteen German pilots brought down for the loss of one of their own killed and another wounded, while damage was limited to a hole in the 411 Squadron dispersal tent.⁶⁶

At Evère, home to 127 Wing, local conditions favoured the Germans as a combination of rain and frost had turned the runways into skating rinks, keeping early morning patrols on the ground. The attack that followed was fierce but short, lasting some twelve minutes and accounting for twenty-four of the approximately sixty Spitfires on the field. Wing Commander J.E. Johnson, RAF, who led the Canadian wing, thought 'we had escaped lightly,' however, 'not one Spitfire should have remained undamaged at Evère.' I and III Gruppen of 26 Jagdgeschwader lost eleven pilots killed, missing, or captured – some brought down by their own Flak on their way to the objective – while casualties among RCAF air- and groundcrew amounted to two killed and twelve wounded.⁶⁷

In all, material losses were 'by no means negligible,' Second TAF having lost 127 aircraft destroyed and 133 damaged. (American forces lost 36.) It was not, however, the kind of devastating blow the Luftwaffe had hoped to strike, and its own loss of three hundred machines with 214 pilots (a third of them to 'friendly' anti-aircraft fire) was nothing if not catastrophic. Following on the heels of two disastrous months in which almost eight hundred pilots had been killed or fallen into Allied hands, Bodenplatte, according to Werner Girbig, 'amounted to total defeat. The home-defence formations equipped with the standard types of fighters never recovered from the blow. Their subsequent operations were insignificant seen against the situation as a whole and offered no further threat to the domination of the enemy air forces.'⁶⁸

In the aftermath of Bodenplatte the Luftwaffe could do nothing but concentrate its ever more meagre efforts on defensive patrols. Intelligence summaries had little doubt as to what German fighters were trying to protect. 'The obvious interpretation of this concern is that our attacks on railways in this area are becoming more than a nuisance, bearing in mind that the railways must be carrying a considerable amount of supplies for the present German offensive, to say nothing of the probability that the divisions being moved down from Norway are using these routes.'⁶⁹

Once again the front stabilized and Second TAF found itself supporting a less active 21st Army Group, ground operations being largely curtailed by inclement winter weather. Under such circumstances the air force's role was to prevent enemy air attacks on friendly troops or reconnaissance over friendly territory, to meet the army's needs for information, and to support whatever minor operations ground commanders might decide upon in order to improve

their positions. Air operations thus became less intense, No 83 Group continuing to carry out interdiction sorties beyond the Rhine while No 84 prepared to support First Canadian Army's forthcoming offensive – Operation Veritable – to close on that waterway.⁷⁰

For some larger operations, however, composite groups were no longer tied to a particular land formation and were instead given a specific role to play in support of the army group as a whole. Thus Veritable, which began on 8 February, saw No 83 Group Spitfires assigned to provide fighter cover while its Typhoons joined No 84 Group on close support missions.⁷¹ There was little for the Spitfires to defend against, and the five obsolete Ju 87s that No 442 Squadron shot down on the first day of the offensive could not have been much of a challenge.⁷² The Typhoons were far more active, No 439's diarist unable to contain his glee. 'The air activity today was a treat for sore eyes, the pilots claimed that there was 10/10ths aircraft [ie, maximum coverage] over the early morning target area.' Of the squadron's six operations, most were four-aircraft patrols, for a total of thirty-two sorties, but keeping the machines flying in abominable weather was no easy task. 'Great credit is due to the ground crew for their part in today's attack as working conditions are far from ideal with water and mud everywhere. Some of the aircraft are parked in pools of water – bombing up and servicing of the kites is no picnic under such conditions. Out of 17 aircraft, 15 were on ops at one time today, which speaks well for the serviceability state.'⁷³

When the weather cleared a little on 14 February, the Allied air forces prepared for a massive effort, flying some nine thousand sorties – more than at any time since the Normandy campaign. No 83 Group claimed its thousandth enemy aircraft that day, destroyed or damaged a record number of jets and locomotives, and made more rail cuts than in any previous twenty-four-hour period. No 126 Wing's Spitfires flew their greatest number of sorties to date – 237 – with the two busiest squadrons managing fifty-four and fifty-three, respectively, while among the Typhoons, No 440 established a new squadron record with fifty-five sorties. 'This close co-ordination for the first time on such a scale between Canada's air and ground forces is historically significant,'⁷⁴ wrote an anonymous staff officer at Overseas Headquarters, noting that RCAF squadrons had now flown almost fifteen hundred sorties in support of First Canadian Army. It would never happen again.

One area where co-ordination was critical was on the ground, between the various maintenance services, and Operations Record Books leave little doubt that servicing echelons put a tremendous effort into maintaining high serviceability rates of 75 per cent or more. At times, and inevitably, ground crew could rightfully complain of being taken for granted by an impersonal system that was interested in operational effectiveness but not necessarily in how it was achieved. 'Moving day meant much work to most sections of the Wing, but the armourers felt they had been particularly hard done by. After yesterday's record breaking day of rails cut and bombs dropped, the armourers fitted three bombs per kite through the whole Wing – in the dark. And today, weather cancelling ops, these bombs were gently dropped before take off to the

new site, and again going late into the night, the armourers diligently bombed up every kite.⁷⁵

Working conditions were perhaps the technician's main challenge as he battled with Northwest Europe's winter climate, and one fighter-bomber squadron suggested in October that 'on looking around the dispersal, it appears that it may be easier to use floats on the Typhies instead of wheels.' When serviceability rates did, on occasion, fall below optimum levels, there was a marked hesitancy to blame groundcrew. On one occasion 'every one blamed 150 grade [fuel] for all engine failures,' while on another 'problems with flats [were] due perhaps to using brakes on long taxi before take-off.'⁷⁶

Nevertheless, with groundcrew ensuring enough aircraft were always available for major operations, on 21 February the various Allied air forces launched their own air offensive, Operation Clarion, designed to strangle communications to the Ruhr. Heavy and medium bombers were given the task of cutting bridges and viaducts while fighter-bombers continued to harass railway traffic, a role they had fulfilled (with some interruptions) since the fall. On the 22nd, No 439 announced 'enormous operational activity' with its greatest number of sorties ever, resulting in twenty-eight railway cuts, one road bombed, the destruction of three flat cars, one armoured vehicle, and two tanks. Such attacks were, of course, hazardous, and due not only to Flak, weather, or mechanical failure. As No 442 reported, 'on one of the afternoon shows, S/L [M.E.] Jowsey had to bale out over Germany. It is believed that he was the victim of a freak accident, being hit by his own bullets ricochetting while strafing some M[echanized] E[nemy] T[ransport]. He was seen to land and the Squadron feel he is OK.'⁷⁷ The hunch was accurate, for Jowsey evaded capture and was back in England by 5 April, though he would see no more combat.

Except for the curious circumstances of his loss, twenty-three-year-old Squadron Leader Milton Jowsey, DFC, was an excellent example of the kind of leader that the RCAF now had in abundance after four years of war. Joining the RCAF in 1940, after graduating from Ottawa's Glebe Collegiate, he had earned his 'wings' and a commission in July 1941 and been posted overseas (via Iceland) the following month. After attending a fighter OTU in England – there were none in Canada until July 1942 – he had been sent to the Middle East. Serving in RAF squadrons, he was promoted to flying officer in July 1942 and flight lieutenant a year later, helping to 'finish off the Luftwaffe in Tunisia' and sharing in the first victory credited to the Desert Air Force 'operating from captured airfields in Sicily.' Given credit for shooting down four enemy machines, his DFC citation proclaimed him 'a cool and capable leader,' noting that 'his courage and determination to engage the enemy have set a fine example to his fellow pilots.' Repatriated to Canada in November 1943, he was back to Europe a year later, posted in to No 442 Squadron as a flight commander and as successor to Squadron Leader W.A. Olmstead, DSO, DFC and Bar, when the latter's tour expired on 13 December 1944. By that time he had added one FW 190 destroyed and another probably destroyed to his record of successes.⁷⁸

Jowsey had shot himself down while strafing targets of opportunity, but the effectiveness of such attacks on the enemy – now standard procedure for those who had completed their pre-arranged tasks – had never been fully evaluated. To shine some light on the subject, Second TAF's Operational Research Section examined cine-gun film of strafing runs that had taken place from December 1944 to March 1945 and concluded that, in general, they brought good results. At least 40 per cent of those against locomotives and 30 per cent of those against road vehicles were well executed, accurate, and effective, while most of the rest caused some damage. The best tactic, it seemed, was to open fire from six to eight hundred yards range against locomotives or five to seven hundred yards against road vehicles, closing to about three hundred yards in a gradual dive while firing a single long burst.⁷⁹

Target policy was similar to that of a year before, with aircraft allowed to attack only purely military targets on German-occupied territory, while Germany itself was to be treated unmercifully. 'Freedom to roam over Germany with a squadron or flight of eager pilots was like the gathering of vultures at a carcass. Everything below was a war-legitimate target. Hitler's War Machine, that I had vowed to help destroy years ago in Canada, had shrunk to its original German borders. There were no Burmese coolies below my wings now; no desert Arabs; no Italian peasants; no French farmers, no Dutch civilians – all were enemy.'⁸⁰

In carrying out such attacks in late February and early March, Typhoon squadrons found the enemy air arm to be a limiting factor for the first time in months. 'The Luftwaffe in the past week has become particularly aggressive in attacks on small groups of aircraft,' Wing Commander Dean Nesbitt, DFC, a Battle of Britain veteran now commanding 143 Wing, explained. 'Our splurge of record breaking rail cuts and sorties was made possible by flying in small units of four and sometimes two aircraft. Luckily, the Hun was too slow in taking advantage of this and Intelligence reports indicate that our rail cutting has had the desired effect on front line problems of supply for the enemy. Therefore, there is no longer any need to expose the pilots to unfair disadvantage. All missions now are carried out by large formations.'⁸¹

From the end of February to mid-March, encounters with enemy fighters were more common as the Germans put up large forces by 1944 standards, sometimes numbering a hundred or more, in an attempt to mitigate poor pilot quality through quantity. As a result, in the week leading up to 21 March, about half the 1650 sorties carried out by RCAF units in Second TAF were fighter operations such as sweeps, patrols, and escort work, and only a fifth dedicated to rail interdiction.⁸²

With the Allies in full possession of the west bank of the Rhine by 10 March, it was time to start detailed planning for an assault crossing and a ground campaign that would take the war to the heart of Germany. Strategic bomber forces, meanwhile, were attacking jet bases, and roughly half the bomber effort for the month was directed against airfields, so that the Luftwaffe, already suffering severely, would be less likely to put in an appearance

over the bridgeheads. On 7 March the First US Army had captured intact the Ludendorff railway bridge at Remagen and by the 10th a substantial lodgement had been established on the far bank; and on the 22nd – one day before Montgomery's offensive was due to start – the Third US Army captured a bridge at Oppenheim, south of Mainz. By mid-March the Luftwaffe was in dire straits, as casualties and emergency withdrawals to the east (where Soviet armies were no more than forty miles from Berlin in the north and pressing through western Hungary in the south) left it with less than 1100 aircraft on the Western Front. A further series of attacks on German airfields, commencing the 21st, rendered most bases unserviceable.⁸³

Operations to form bridgeheads over the Rhine would involve airborne landings (Operation Varsity) as well as assault water crossings (Operation Plunder) and – staffs having learned from the Arnhem catastrophe – this time air support was closely integrated and planned at Second TAF. No 83 Group was given responsibility for maintaining air supremacy over the battlefield and for fifty miles beyond, while also attacking Flak positions and answering requests for close support. The latter operations would rely on a sophisticated system of communications between ground and air forces as forward control posts, each made up of an air liaison officer and an RAF controller, linked aircraft in flight with ground formations down to brigade level, while each armoured brigade maintained a Sherman tank as contact car to keep in touch with air and ground reconnaissance units. Final preparations took place during the evening of the 22nd, and, in 126 Wing, 'everybody left the briefing room with a clear idea of the importance of the part that this Wing was to play in keeping the Luftwaffe off the backs of our advancing ground forces.'⁸⁴

The artillery barrage that accompanied the assault crossing of the Rhine on the night of 23/24 March was one of the heaviest of the war: bombers attacked communications, airfields, and batteries within range of the bridgehead; and when the sun rose No 83 Group aircraft attacked every enemy gun position that opened fire and attempted to keep the skies clear of German aircraft.⁸⁵ Air/ground cooperation was excellent, as the usually critical Coningham reported after the war.

During the hours of daylight on D-day, 83 and 84 Groups RAF and XXIXth US Tactical Air Command flew strong defensive fighter patrols over the assault areas, and offensive sweeps over the enemy day fighter bases in the Twente-Enschede, Rheine and Paderborn areas to prevent the German Air Force interfering with the elements of the Second British and IXth US Armies engaged in expanding the bridgeheads established on the east bank of the Rhine during the preceding night ... 83 Group maintained one 'cab rank' of four aircraft over its advanced Group Control Centre on the west bank of the Rhine, with two squadrons at readiness on the ground. There was one contact car with each of the two assaulting British divisions, and a further two contact cars were safely flown in with the airborne divisions. Immediate support requests from the four divisions were filtered at the

advanced G[roup] C[ontrol] C[entre], and those that were accepted were passed to the aircraft, which were handed over to the control of the Forward Control Post (contact car) concerned.⁸⁶

The extent of the air support provided for the airborne divisions was in marked contrast to the experience at Arnhem, the air forces answering thirty calls for impromptu missions during the day, while two wings of Typhoons were permanently employed in suppressing any Flak that might threaten troop-carriers. Operational researchers noted that the effect of the Typhoons' new cluster bombs was similar to that of rockets, managing few direct hits but discouraging anti-aircraft gunners from using their weapons.⁸⁷

Already before 2nd Army's operation began 8th [US] Air Force had rendered unserviceable all airfields hitherto associated with the enemy's jet aircraft. In addition to further bombing attacks today, their fighters were ranging over most of NW Germany in order to intercept at the earliest moment, any aircraft that took off from the area or were called into it from outside. Further to this, the three fighter Groups comprising 2nd Tactical Air Force maintained strong fighter patrols over the battle area, and for some distance beyond it. Accordingly it is hardly surprising that not a single case of interference from the air with either the ground or the airborne forces has so far been reported today.⁸⁸

The same was true of the days that followed, and the Rhine crossing was a complete success.

Anglo-Canadian and American forces thus advanced out of the Rhine bridge-head and towards the Elbe as the war moved into its final fifty days. The offensive soon outranged No 83 Group's bases, and in early April No 400 Squadron – flying Spitfire PR XIs, with substantially greater endurance than the Spitfire IX – complained that 'the progress of the forward troops makes the duties of the other Squadrons in the Wing difficult to carry out due to lack of range.' Indeed, 'several tasks for this Squadron have been cancelled by Army because of the swift movement of armour, etc.'⁸⁹

With Allied forces advancing into Germany, the Italian campaign looked – to participants as well as observers – to have become nothing more than a sideshow, though no less brutal for that. In early 1945 No 417 switched from close support to interdiction duties, attacking observation posts, rail lines, bridges, and transport, and with better weather (starting in the last week of February) the squadron flew far more often. Of note at Overseas Headquarters were the nominal rolls for March 1945, which revealed that the squadron had finally achieved the goal of 100 per cent Canadianization; it had always been close to this figure in aircrew and the last RAF pilot to fly with the squadron had departed the previous September, but a hundred RAF technicians had accompanied the squadron to Egypt in 1942, and some of them represented skilled trades difficult to fill. Their number only gradually shrank as Canadian replacements became available, and it was not until 31 March 1945 that the squadron

diary reported 'nil' RAF officers or airmen on strength;⁹⁰ No 417, in all its glorious isolation from the rest of the Canadian war effort, would fight the last full month of the war as an all-RCAF unit. (Isolation, because, in that same month, 1 Canadian Corps left Italy, moving to Northwest Europe for the last weeks of the war.)

German defences in Italy finally cracked in April, with Anglo-American armies launching a long-awaited spring offensive on the 8th. No 417 supported the attack as Allied formations broke through German positions on the Senio River, crossed the Po, and advanced into the Venetian plains; one city after another fell and by 30 April Venice itself was in Allied hands.⁹¹

During the last week of April, operations diminished in intensity as resistance crumbled and bad weather grounded the Spitfires for several days. German forces in Italy surrendered on 2 May, and the following day the squadron moved to Treviso, the unit diarist commenting on the difference between territory that had been fought over and the area it was moving into, which had not.

It was interesting to note a considerable improvement in the people and the countryside as we advanced north of the Po River. South of the river are the heaps of rubble left by our bombers and the cheerless people who continue to exist in the shattered villages. At the great river, which seems to be the dividing line, this desolation reaches its peak. Skeletons of guns and motor transport line the banks and the bloated bodies of horses and oxen lie here and there in the stream.

Travelling north from the Po, these evidences of war gradually lessen. Fewer buildings bear the tell-tale pock marks of house-to-house fighting; there are no signs of shelling, and only the obviously military target has been reduced to a pile of brick, dust, and twisted metal girders.⁹²

In Northwest Europe, the success of Plunder and Varsity had left RCAF squadrons anxious to cross the Rhine, leading many of them to claim 'firsts.' 'The advance party of 414 Squadron proceeded to B-104 Airfield, Wesel Area, in conjunction with 'A' Echelon of 39 Wing. This territory was quite recently captured by the Army and it is believed that this detachment is one of the first, if not the first group of RCAF personnel to cross the Rhine.' No 439 claimed to be the first RCAF squadron to land its aircraft in Germany on 30 March and, being on German territory, armed everyone in the unit to guard against saboteurs. No 406 Air Service Park took similar precautions. 'Immediate steps are being taken to ensure that all personnel are familiar with, and know how to fire and dismantle all types of weapons used for defence. The precaution is being taken with an eye to future moves which will no doubt take us into German territory, and also the fact that this Unit might not be under the protection of an airfield which have [sic] RAF Regiment personnel for this purpose.'⁹³

In the first fortnight of April, Second British Army drove forward two hundred miles from the Rhine to the Elbe, the rate of advance leading some pilots to complain that their orders were out of date. 'Stories or briefings change a bit each time they pass from mouth to mouth and they sure do pass

through a lot of mouths before they get to us.' Exceptions to the rule were the Air Observation Post (AOP) squadrons – recent additions to the RCAF, though the Royal Air Force had seen fit to introduce them in late 1942.

AOPs were the ultimate example of air/ground cooperation, ironically with army officers as pilots while maintenance and administrative staff wore air force uniforms. Their early days in the RAF had been rocky, the air staff fearful of the resurrection of an army air arm; so the first to enter operations, No 651, did not reach Tunisia until November 1942, where it was engaged in its primary role of spotting for artillery batteries with unarmed, American-designed, Taylorcraft Austers. The RCAF's AOPs were even longer in entering operations, for though the first army officers to train in such duties had completed their courses in late 1941, General McNaughton had decided, for reasons unknown (but probably connected with their apparent inability to survive in anything less than a totally permissive environment), that there would be no Canadian observation squadrons.⁹⁴

Not until September 1944 did his successor, General Crerar, revise that edict. The first such unit, No 664, was formed on 1 December and equipped with the Auster IV – a three-seater, high-wing monoplane with a maximum speed of 130 miles per hour and a cruising speed of 112 miles per hour – but it could fly as slowly as 40 miles per hour and needed only seventy-five yards of grass runway to take off and even less to land. Two more squadrons, Nos 665 and 666, were formed in the months to come but, appearing so late in the war, only the first two would actually serve on operations, which, with the Luftwaffe no longer a threat, included front-line reconnaissance as well as artillery spotting; No 664's first operation, on 29 March, was a reconnaissance mission, as was No 665's last on 7 May. In all, Nos 664 and 665 flew 619 and 58 sorties, respectively, the former losing one aircraft and two aircrew killed.⁹⁵

For Spitfire and Typhoon pilots, armed reconnaissance missions, greatly aided by the clear spring weather, continued as they swept ahead of quickly advancing columns to hinder any German attempts either to recuperate or retreat. On 16 April No 403 proclaimed, 'A beautiful flying day, and one of the best kills the Squadron has had for many a month, many M[echanized] E[nemy] T[ransport] destroyed in the five armed recce operations carried out, and the pilots are in very high spirits having so much action in one day.' Sometimes the opportunity for air-to-air action presented itself, only for the squadron to find that it could not take advantage of it. On the 17th No 411 reported: 'Again today enemy motorized and railway equipment score mounted but after expending all ammo on ground targets on one mission the Squadron sighted 15 Me 109s but nothing could be done.'⁹⁶ Nevertheless, 'the week ending Wednesday April 18 has been one of noteworthy achievement for RCAF squadrons based on the Continent. All our Spitfire and Typhoon squadrons operating with 83 Group have now moved forward to airfields in Germany, bases formerly occupied by units of the German air force. From these newly acquired airfields our fighter bombers have carried out the most

intensive programme of armed reconnaissances since D Day, aimed at the fleeing German transport in the path of the advancing allied armies.⁹⁷ Indeed, No 402 found that the last half of April 'proved to be the most active and profitable two weeks yet recorded,' and 'the fact that the aircraft were now based within easy striking range of the fleeing foe had a telling effect on all types of the enemy's transport.'⁹⁸

Air operations became more hazardous again as Allied troops crossed the Elbe on 29 April, for 'in contrast to the ground, opposition in the air was relatively heavy over the Lauenburg bridgehead. Both jets and normal fighters were involved,' and 'it may be the case that the G[erman] A[ir] F[orce] is thoroughly disorganised and working under extreme difficulty, but the scale of effort put up today once more shows clearly how the GAF is able to improvise in difficult circumstances.' Indeed, the Luftwaffe reacted sharply to the Elbe crossings, sending more aircraft against the bridges than No 83 Group had seen in weeks, with the rather bizarre result that spirits *rose* within RCAF units. No 402 claimed eight destroyed and four damaged on the 30th alone, though No 443 reported that 'the month ended with another batch of uneventful patrols. We are hoping for more action or peace, the sooner the better.'⁹⁹

One who had much to give thanks for in the last days of the war was a pilot in No 412 Squadron.

Thanks to accurate pin-pointing of F/O G.M. Horter's ... aircraft which had crashed on the 28th April, the squadron Medical Officer, F/L J.E. McAllister ... was able to locate the crash and found F/O Horter still strapped into the cockpit and alive, although in a semi-conscious state, after having spent forty hours in that position. An Army Unit near by, had seen the aircraft crash and the explosion and flames. Having already lost a Lieutenant and a Sergeant in that vicinity recently, they were not anxious to investigate the crash, presuming that the pilot would have been killed on landing. He is now in hospital, on the S[eriously] I[njured] list, suffering from exposure, immersion feet [sic], fractured left humerus and lacerations of the face, left wrist and thigh. It is thought that he will recover. It is virtually a miracle that he is alive, as the a/c was completely broken up. The only factor that probably saved his life, was being strapped into the cockpit, as otherwise he would have been thrown into a deep ditch of water, which was certainly too deep for him to get out of in his injured condition.¹⁰⁰

No 52 Mobile Field Hospital (RCAF) was certainly well able to receive him, having, on average, filled only thirteen of its seventy-one beds daily in the last full month of the war.¹⁰¹

Air Vice-Marshal Broadhurst later observed that some of the most intense aerial operations of the campaign were in its final days, though experiences varied widely as squadrons changed roles every day or even from one mission to another. On 1 May No 416 reported that 'pilots are getting bags of Jerry transport now, but no aircraft,' while No 414 declared the 2nd 'a red letter day for the Squadron' when it claimed six aircraft destroyed and two damaged. No 400 also had cause for celebration on the 2nd, for not only did a reconnaiss-

sance sortie locate advancing Russian troops, but 'in mid-afternoon a German training aircraft landed at B 154 with two [members] of the Luftwaffe flying from an airfield being overrun by Russians.'¹⁰²

Such incidents were far from isolated as Germans in and out of uniform attempted to avoid capture by vengeful Soviet armies. One major escape route was through the Baltic, which naturally attracted the attention of tactical air forces always on the lookout for bottlenecks.

Today's picture with M[echanized] e[nemy] t[ransport] fleeing bumper to bumper was very similar to the Falaise Gap last summer when we scored such a huge success. The last mission of the day was the best. It was directed against a large troop ship and out of 22 x 1,000 lb bombs dropped, direct hits were scored with four, and many were near misses. One bomb hit on the bow, one at the stern and 2 near the bridge amidships. Great numbers of smaller ships were seen as well as quite a number of subs. This Squadron came in for some glory today when ... F/O W.F. Birch dropped the 10,000th bomb dropped by 143 (RCAF) Wing.¹⁰³

Crowded shipping was sufficiently tempting to distract Typhoons from some of the best targets they had seen in months. 'A report came back flashing the news that Jerries retreating east of Lübeck met those retreating west from the Russian front, making a lovely mess of men and vehicles but this was not for us, instead we commenced chasing German shipping which is escaping with troops presumably to Norway ... The Flak boats threw up a mass of metal at the Typhies and all in all it was a dicey do.'¹⁰⁴ Anti-shipping strikes continued on the 3rd and 4th, and only the surrender of German forces in the area put an end to them.

In Northwest Europe some squadrons had already started celebrating when German forces in the Netherlands surrendered on 4 May, though No 438 had warned, 'we shall see what tomorrow will bring.' Others were less cautious, No 403 among them. 'What an evening of celebration with the news of the Canadian armies in the north being victorious and the surrender of the enemy. Just Norway and southern Germany to clean up now. The bar was thrown wide open, and guns of every description firing away in the small hours in celebration.' On the 5th No 412 reported that 'there was no Operational flying today. Possibly it was just as well, as it will give everyone an opportunity to recuperate from yesterday's spontaneous outlet of pent-up feelings.'¹⁰⁵

When Admiral Dönitz surrendered all German forces on the 7th, there was no longer any doubt. 'This is it, the Nazis have surrendered. Official VE Day will be tomorrow but nobody waited till then to start celebrating. The bar was the scene of a well organized assault, and the fun was still going strong in the early hours of the morning.' No 441's Operations Record Book entry for the 8th was the shortest of the war: 'VE-Day'¹⁰⁶ was all it said.

Taking stock of the Northwest Europe campaign, from 6 June 1944 to 7 May 1945, 196 Canadian pilots and groundcrew died serving with the fighter and fighter-bomber squadrons of the RCAF Overseas. The three hardest hit were the Typhoon squadrons, with thirty-one pilots and groundcrew of No 440 los-

ing their lives, thirty in No 439, and twenty-six in No 438. No 439 Squadron calculated that over 60 per cent of Typhoon pilots became casualties before completing their tours. In contrast, 400 Squadron, concentrating on photo-reconnaissance, usually above the Flak and rarely engaging the Luftwaffe, lost only a single pilot.

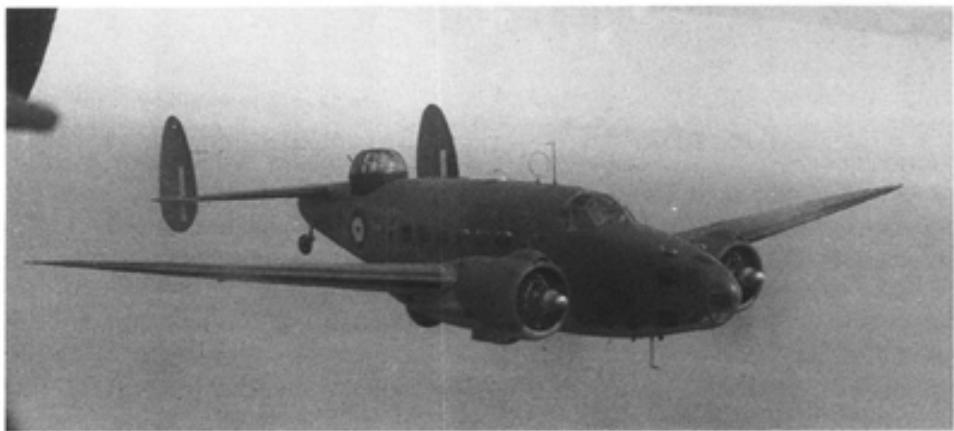
As for the damage inflicted on the enemy, No 126 (RCAF) Wing was the top-scoring formation in Second TAF, credited with 361 confirmed victories in the air and on the ground, while its 401 Squadron was the most successful single unit, with 112 aircraft destroyed in the air and fifteen on the ground. The two highest scoring pilots in the campaign were Flight Lieutenant D.C. Laubmann, DFC and Bar, of 412 Squadron, and Squadron Leader W.T. Klersy, DFC and Bar, of 401 Squadron, credited with fourteen-and-a-half and thirteen-and-a-half victories, respectively.¹⁰⁷ (Klersy was killed in a flying accident two weeks after the fighting ended.)

With the war over, flying went on but perspectives quickly changed. On 7 May No 438 Squadron announced that 'a meeting of the Squadron pilots was held today with the object of getting sports under way.'¹⁰⁸



PART THREE

The Maritime Air War



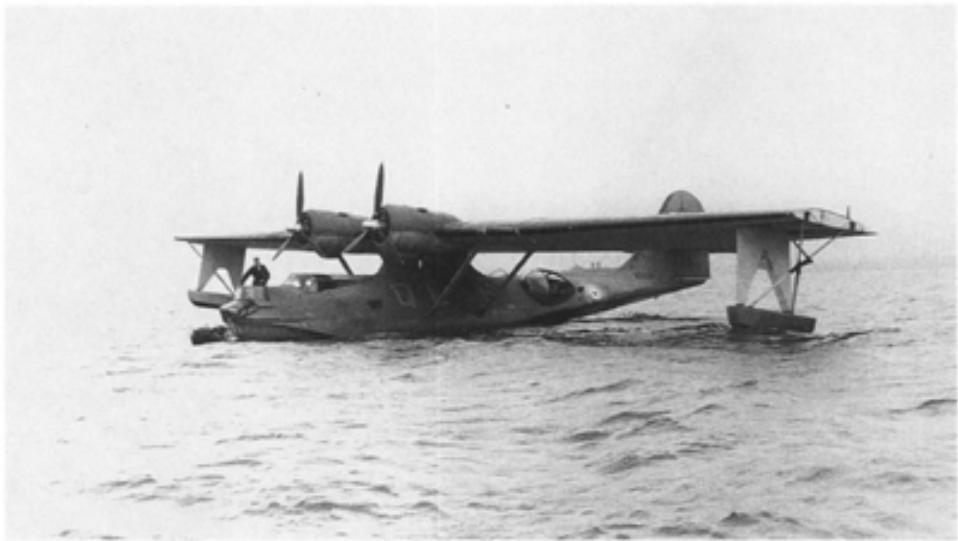
One of No 407 Squadron's Lockheed Hudsons. Originally designed as a civil aircraft, the slow, underarmed Hudson was ill-suited to the anti-shipping operations on which it was employed. (PL 4622)



Pilot Officer W.B. Cooper and crew inspect the Flak damage done to their Hudson on 10 October 1941. (PL 4729)



No 407 Squadron's first commanding officer, Wing Commander H.M. Styles (left), and 'A' Flight commander, Squadron Leader P.E. Lewis, both RAF, pose in front of a Canadian Hudson. Styles, 'the Hollywood director's idea of an RAF operational wing commander,' proved to be a popular leader among his Canadian aircrew. (PL 4610)



No 413 Squadron formed at Stranraer, Scotland, in July 1941 and operated Consolidated Catalina flying boats, such as the one pictured above, over the Indian Ocean from April 1942 to December 1944. (PL 4634)



Officers of No 404 Squadron in front of one of the unit's Bristol Blenheim IV fighters in 1941. Seated in centre, with the dog between his feet, is the squadron's commanding officer, Squadron Leader P.H. Woodruff, RAF, of Edmonton, Alberta. (PMR 72-35)



Wing Commander R.G. Briese, seen looking through the roof hatch of a Catalina, was a prewar RCAF officer and the first commanding officer of No 413 Squadron. He went missing on an operational flight over Norway on 22 October 1941. (PL 4630)



Squadron Leader L.J. Birchall at the controls of a 413 Squadron Catalina. Birchall located the Japanese carrier force that was preparing to attack Ceylon on 4 April 1942 and transmitted a warning before being shot down. Together with the survivors of his crew, he spent the rest of the war as a prisoner of the Japanese. (PL 7405)



Silhouetted against the tropical sun, RCAF fitters work on a Catalina of No 413 Squadron at Koggala, Ceylon, in the summer of 1942. (PL 10008)



A ground collision involving a Handley-Page Hampden torpedo-bomber of No 415 Squadron and a Boeing 'Flying Fortress,' also of Coastal Command, 1943. (PMR 82-007)



In order to work in the frigid waters of Lough Erne at Castle Archdale, Northern Ireland, mechanics had to put on rubberized wading suits before making their repairs. (PL 40986)



Short Sunderland U of No 422 Squadron at the instant of touchdown. This particular aircraft sank U-625 on 10 March 1944. (PL 40996)



The interior of a Nissen hut, common to most wartime RAF stations, usually accommodated fourteen men. In the centre is the sole (and inadequate) source of heat, a small coal-burning stove. (PL 45598)



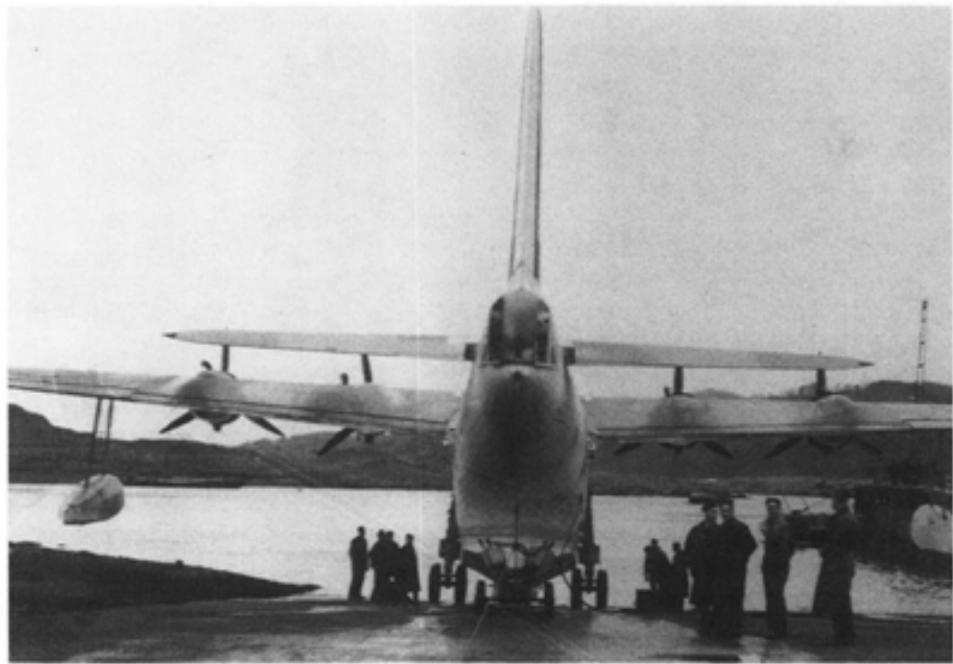
Working from a floating platform, mechanics examine one of the four Bristol Pegasus engines of an RCAF Sunderland flying-boat. (PL 31437)



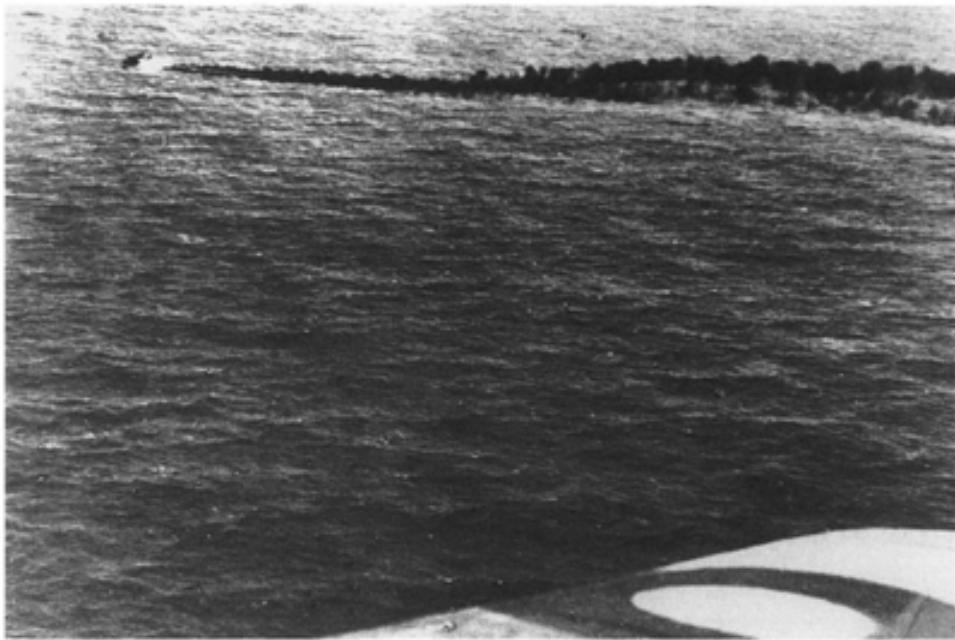
Accurate navigation was vital to Coastal Command operations. Flying Officer Jack Ritchie works at the navigator's desk of an RCAF Sunderland. (PL 22077)



The maintenance area for the Sunderlands of No 422 Squadron at Castle Archdale, Northern Ireland, in mid-1944. (PL 33252)



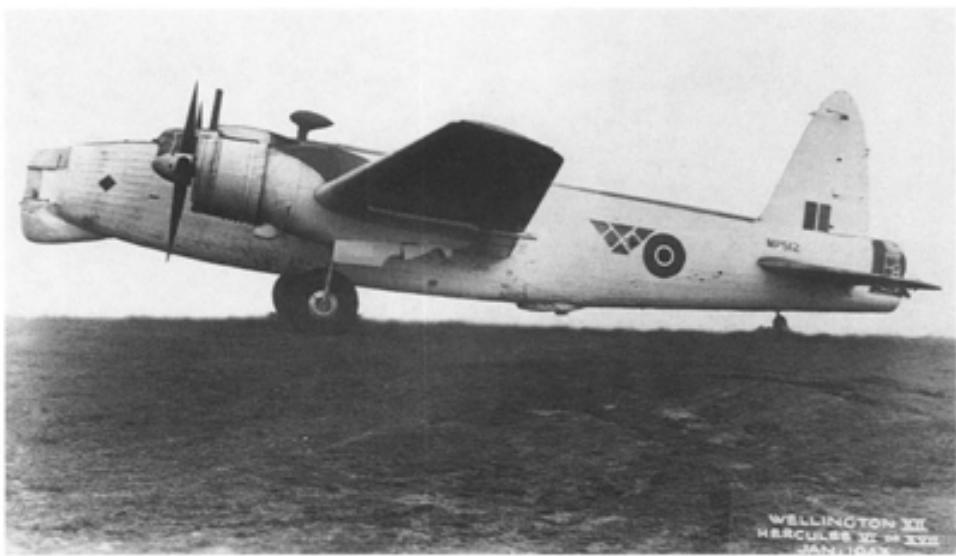
A Sunderland is beached for maintenance. Hauling these 26-ton aircraft ashore could be a ticklish business. (PL 15751)



The Blohm and Voss BV 138 flying-boat attacked by Flying Officer S.S. Shulemson of No 404 Squadron goes down in flames on 28 July 1943. (PL 19522)



The downed boat on the surface. Both photographs were taken by Shulemson's navigator, Sergeant A.D. Glasgow. (PL 19523)



A Leigh Light-equipped Vickers Wellington Mark XII similar to those used by No 407 Squadron. The retracted Leigh Light is visible on the underside of the fuselage just behind the wing, while the ASV III radar is located in the dome under the nose.
(RE 19876-11)



A Fairey Albacore similar to those used by No 415 Squadron to chase German E-boats in the English Channel. With a cruising speed of only 115 miles per hour, the Fleet Air Arm biplane was not what Overseas Headquarters had in mind when they sought to replace obsolescent Hampden torpedo-bombers in the Canadian unit. (PL 130488)



No 404 Squadron personnel line up for tea and buns at a Church of Scotland van in the summer of 1943. (PL 19439)



A Bristol Beaufighter Mark X of 404 Squadron with freshly painted invasion stripes in June 1944. The primary anti-ship weapon used by the Canadians was the 3-inch rocket with a 25-lb armour-piercing warhead launched from underwing rails. (PL 41049)



Four German M-class minesweepers on fire and sinking in Bourgenuf harbour on the Biscay coast after a 404 and 236 Squadron strike on 8 August 1944. (PMR 93-071)



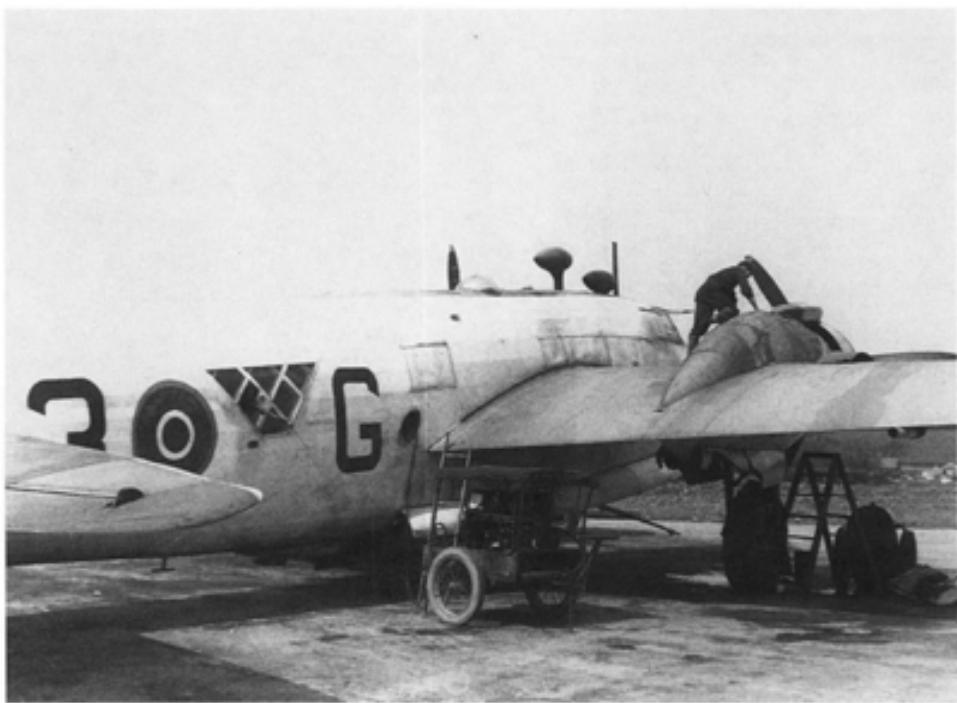
One of two Sperrbrechers – small, heavily armed merchant vessels used as Flak ships – sunk off Royon, Brittany, by a combined 404 and 236 Squadron strike on 13 August 1944. (PMR 93-080)



Splashes from both machine-gun fire and depth charges entering the water mark the start of the successful attack on U-625 by Sunderland U of 422 Squadron on 10 March 1944. (C 4287)



The crew of U-625 take to their life rafts after the successful attack. Escaping the U-boat did not ensure survival, however, as none of the submariners photographed by the circling Canadians were ever seen again. (RE 68-586)



Servicing a Leigh Light Wellington. The beam gun position clearly shows the aircraft's geodetic lattice-work construction that made it such a rugged machine, capable of withstanding great punishment. (PL 40927)



The German torpedo boat *T.24* (foreground) and the destroyer *Z.24* under attack by Beaufighters of 236 and 404 Squadrons off Le Verdon, France, on 24 August 1944.
(PMR 93077)



An armourer slides a 3-inch rocket onto the underwing rails of a Canadian Beaufighter.
(PL 41007)



A Beaufighter Mark X of 404 Squadron fires off its rocket projectiles. (PMR 92-580)



The German merchant vessels *Aquila* and *Helga Ferdinand* under attack by Beaufighters of 144, 455, and 404 Squadrons in Midgulen Fjord, 8 November 1944. The photograph was taken from the No 404 Beaufighter piloted by Flying Officer L.C. Boileau. Both ships were sunk. (PMR 93-079)



Eight rockets from Beaufighter H of 404 Squadron head for the Norwegian salvage tug *Blaaveis* in Sognefjord, Norway, on 9 January 1945. The tug was destroyed in the attack. (PMR 92-586)



The 9 February 1945 attack on the German destroyer Z.33 in Forde Fjord as seen from Beaufighter T of 404 Squadron piloted by Flying Officer H.P. Flynn. Anti-aircraft fire from Flak batteries located on the fjord's cliffs took a heavy toll from the attacking aircraft. (PMR 93-087)

Introduction

Ottawa's decision (in line with British priorities) to place the greatest emphasis on strategic bombing and to assign second place to fighter and fighter-bomber operations meant that the RCAF contribution to Coastal Command was limited to eight squadrons. Even so, one of them, No 162, was really part of the Home War Establishment, being loaned to Coastal Command and operating out of Reykjavik, Iceland, and Wick, Scotland, after January 1944. Since it was never formally a part of the RCAF Overseas, its story was told in the second volume of this series. A Canadian bomber squadron, No 405, served briefly in the command for four months during the winter of 1942/3.

Three more squadrons, Nos 413, 422, and 423, were formed in the United Kingdom, to be employed against the German U-boat menace in European and North Atlantic waters. However, the transfer of the first-formed, No 413, to Ceylon (now Sri Lanka) in the spring of 1942 delayed full participation in the North Atlantic anti-submarine campaign by RCAF Overseas squadrons until the following year. At that time the two remaining flying-boat squadrons, together with the Leigh Light-equipped Vickers Wellingtons of 407 Squadron and the Handley-Page Halifaxes of No 405, were able to take part in a fruitful offensive in the Bay of Biscay.

The success that aircraft enjoyed against surfaced U-boats over the summer and fall of 1943 led to the introduction of vessels fitted with Schnorkel tubes. By permitting submarines to remain submerged throughout their cruise, these devices encouraged the enemy to embark on the cautious inshore campaign in British waters that characterized the last eleven months of the war. It also reduced the value of aircraft as U-boat killers. While the RCAF squadrons in Coastal Command sank, or shared in the sinking of, nine submarines (not including the six destroyed by 162 Squadron), only two such successes were achieved after the D-Day landings.

Although the strategically defensive task of anti-submarine operations dominated the maritime air war, both in terms of the resources employed and its importance to the overall Allied war effort, a small proportion of Coastal Command strength was used to conduct an anti-shipping offensive along the coasts of Northwest Europe. As a secondary campaign fought by one of the RAF's less glamorous commands, the direct attack on German shipping has not

received as much attention from historians as have the air aspects of the anti-submarine war or the numerically larger battles waged by Fighter and Bomber commands. Thus the hazardous nature of many of the attacks, as well as the significant effects they eventually had on the German economy, have largely escaped public notice.

The three RCAF squadrons that took part in the anti-shipping war made a significant contribution to the success that Coastal Command eventually achieved. As exemplified by the experience of 407 Squadron during the first year of its existence, however, that success was delayed by the obsolete and inappropriate aircraft with which the strike squadrons were initially equipped – another indication of the low priorities usually accorded to Coastal Command and of the Royal Navy's view that anti-shipping operations were of less than overwhelming significance. For the first three years of the campaign, most attacks would prove to be deadly exercises in futility while the goal of creating a successful strike force remained but a distant objective.

Equally frustrating, if less dangerous, were the organizational misfortunes of No 415 Squadron. Formed as a torpedo-bomber unit in August 1941, it was initially equipped with obsolescent aircraft – first Bristol Beauforts, then Handley-Page Hampdens – and assigned to a series of marginal, ineffective roles. It was moved nine times in the first fifteen months of its existence, before being divided into two flights (one equipped with Wellingtons, the other with Fairey Albacore biplanes) and scattered in detachments around the British coast. Discipline and morale suffered accordingly, until salvation came (after many complaints) with its transfer to Bomber Command in July 1944.

No 404 Squadron initially flew the long-range fighter variant of the Bristol Blenheim light bomber and embraced more fulfilling roles, but it was not until the spring of 1943 that Coastal Command was finally provided with the aircraft it needed to create a successful strike force. The Bristol Beaufighter, with some machines modified to carry torpedoes, combined sufficient firepower to suppress shipborne Flak with the speed and manoeuvrability that previous torpedo-bombers had lacked.

Better, more sophisticated tactics helped, too, and when the strike-wing technique was extended to the Norwegian coast later that summer, 404 Squadron added a refinement of its own by adopting the 3-inch rocket projectile (RP) with a 25-lb armour-piercing warhead as its main anti-shipping weapon. Other squadrons followed suit, and the RP-equipped Beaufighters proved their worth the following year when the Canadians helped to shield the western flank of the Operation Overlord invasion area from interference by German naval forces.

There was yet another aspect to the maritime air war in which Coastal Command might have been expected to play a major role. Throughout the war, air-dropped mines were sown by night in the approaches to German ports (and those of occupied countries) and at 'choke points' along the coastal waterways of Northwest Europe. These minefields required the enemy to expend considerable efforts in sweeping operations, yet still left much uncertainty and nervousness in the minds of merchant seamen since those not swept accounted for significant amounts of shipping.

Some mines were dropped by Coastal Command aircraft, but from the outset of the mining campaign, in April 1940, by far the greatest number were laid by Bomber Command. Not only was the Wellington – which Bomber Command had in relative abundance – a better machine for the purpose than Coastal Command's Beauforts and Hampdens, but, as the former's four-engined Short Stirlings and Handley-Page Halifax IIs and Vs became obsolescent in terms of deep strikes into Germany, they were increasingly used on Gardening operations. Thus the story of aerial mining has been left to the section of this volume devoted to the bomber war.

Throughout the final two years of the war the number of Canadians serving in Coastal Command averaged between two and three thousand. As Canadian strength reached its peak in June 1944, there were 2065 Canadians serving in RCAF squadrons and a further 919, mostly aircrew, serving in RAF units.

The small number of RCAF maritime squadrons and the variety of aircrew required meant that there were great difficulties in 'Canadianizing' the RCAF squadrons. At various times, eight squadrons flew ten different types of aircraft operationally, each with its unique crew composition, and not all aircrew categories were provided for in the RCAF training pipeline. No 404 Squadron, for example, had a high proportion of RAF navigators (W) – navigators who were also trained as wireless (radio) operators – in its two-man Beaufighter crews because there was no appropriate training provided in Canada. Similarly, a shortage of flight engineers and wireless operators (mechanics) hampered the Canadianization of the two Sunderland squadrons until experienced flying-boat crews were posted from the Home War Establishment to Coastal Command beginning in February 1944.

Morale was something of a problem throughout the command. At various times, low priorities in equipment, inadequate accommodation, and a lack of public recognition, compounded by the inevitable tedium of anti-submarine patrolling on the one hand, or the sometimes desperate nature of anti-shipping strikes on the other, did little for the spirits of maritime airmen. In addition, to a greater extent than in other commands, interservice relationships with the RAF seem to have added to the frustrations that beset Canadian flyers.

The Anti-Submarine War in European and Far Eastern Waters, 1941-5

In the later stages of the First World War, anti-submarine patrols of the Royal Naval Air Service and (after 1 April 1918) the Royal Air Force had enjoyed considerable success in countering the German U-boat threat – though not always, or even largely, by sinking them. Submarines, which normally attacked on the surface, nevertheless depended on concealment to survive, and the proximity of patrolling aircraft usually persuaded their captains to submerge, protecting their boats but also spoiling their attacks. Of course, whenever a submarine was sighted on the surface (or, as was more likely, in the process of submerging), the airmen made every effort to destroy them; but successes were rare, in large part because they had to rely on bombs which had been designed to damage or destroy land targets. The Royal Navy's principal anti-submarine weapon, the depth charge, was too awkward and heavy for the aircraft of the time to carry, and contact-fused bombs had to register either a direct hit or a very near miss to sink or damage a submarine.¹

Aircraft were greatly improved during the interwar years, but anti-submarine weaponry changed not at all. The first depth charge issued to operational squadrons of Coastal Command in July 1940, the 450-lb Mark VII, was still one designed exclusively to naval specifications and therefore too bulky to be carried by any Coastal Command aircraft of the time other than flying-boats, of which there were only a limited number. Although the lighter, more compact 250-lb Mark VIII was introduced in the spring of 1941 (shortly before No 413, the RCAF's first overseas anti-submarine squadron, began forming), its Amatol filling had only 30 to 50 per cent of the explosive force of the Torpex-filled Mark XI that would succeed it in 1942.

Moreover, a U-boat of Second World War vintage was only likely to be destroyed, even by a Torpex depth charge, if the explosion occurred within nineteen or twenty feet of the hull, and the pressure-sensitive detonator in use until mid-1942 had a minimum setting of fifty feet, too deep to destroy submarines close to the surface. It would not be until July 1942 that the Mark XIII Star 'pistol,' capable of detonating a depth charge in fifteen feet of water, would come into service. Until that time a submarine on the surface was safe from anything but a severe shaking. Thus the early history of anti-submarine operations in the Second World War was very similar to that of the First, with

the greatest success being suppression, rather than destruction, of U-boats. Indeed, despite having made 245 attacks since the beginning of the war, by September 1941 Coastal Command's score stood at only 'three sinkings shared with surface escorts, one boat that had surrendered to aircraft, and a handful of boats damaged'.²

However, the inability of aircraft to destroy submarines scarcely diminished Coastal Command's usefulness in the defence of shipping, upon which Britain's survival depended. For a main purpose of maritime forces was to ensure the 'safe and timely arrival' of merchant vessels, and to that end the near-perfect security of shipping under adequate air protection was a vital contribution. This was especially so because the Royal Navy was desperately short of ocean-going anti-submarine escort vessels.³

Air power effectively supplemented the overworked naval escorts because the arrangements for command and control, developed in the last years of peace, fully integrated the maritime air force into the navy's system of operational control. The boundaries of Coastal Command air groups coincided with those of the navy's home commands, and air and naval commanders shared 'area combined headquarters' where they worked together in the same room, over a common plot on which was displayed information fed directly from the Admiralty's operational intelligence centre. The senior naval officer gave general direction, for he was best equipped to comprehend the situation at sea, while the air group commander was free to carry out his mission in accordance with his professional judgment and his detailed knowledge of the air resources to hand. It was a marvellously flexible way to overcome the gulf of incomprehension between officers of two services whose experience was in vastly different environments.⁴

Expansion of Coastal Command had a central place in the urgent efforts to strengthen Britain's maritime forces during the dark year following the fall of France. At this time the United Kingdom was utterly dependent on long overseas trade routes that were made even more vulnerable by German possession of bases extending from the northern tip of Norway to the Franco-Spanish frontier. The number of merchant ships lost to U-boats soared to five hundred in the nine months between June 1940 and March 1941, as compared with only two hundred during the first nine months of the war. There was also a need to deploy aircraft and ships for anti-invasion duties on the east and south coasts of the United Kingdom.⁵

Growth was substantial, although it by no means met the extreme demands of these circumstances. Of the ten squadrons added to the twenty-nine of November 1940, two were flying-boat squadrons and four consisted of land-based anti-submarine machines (usually referred to in service terminology as general reconnaissance, or GR, squadrons). Average strength grew from 201 aircraft in November to 298 in June 1941, with the greatest improvement coming in the realm of long-range GR squadrons available for convoy escort. Those increased from one Armstrong-Whitworth Whitley squadron to one Vickers Wellington and two Whitley squadrons. There was also one squadron of Consolidated B24 Liberators in the process of forming. Modified to extend

General Role	Unit	RCAF OVERSEAS ORDER OF BATTLE							
		'39	1940	1941	1942	1943	1944	1945	1946
Maritime Reconnaissance and Strike	404 Sqn			Bl 4		CC			
					Be 2	Be 10		Mo 68	
				Be 11					
	405 Sqn				CC				
				Hx 2					
	407 Sqn				CC				
					Bl 4	We 10	We 14		
				Hd 3	We 11	We 13			
				Hd 5					
	413 Sqn				CC	SEA			
	415 Sqn				CC				
				Bl 1	Hm 1	We 13			
				Bl 4		Al 1			
	422 Sqn				CC				
					Le 1	Su 3			
					Ca 1/Ca 3/Ca 5				
	423 Sqn				CC				
					Su 3				
		10 Sep 39 Declaration of War		07 Dec 41 Pearl Harbor		08 May 45 V-E Day		14 Aug 45 Cessation of hostilities	
Aircraft Types									
Al 1	- Fairey Albacore Mk I	Hm 1	- Handley Page Hampden Mk I						
Be 2	- Bristol Beaufighter Mk II	Hx 2	- Handley Page Halifax Mk II						
Be 10	- Bristol Beaufighter Mk X	Le 1	- Saro Lerwick Mk I						
Be 11	- Bristol Beaufighter Mk XI	Li 6	- Consolidated Liberator Mk VI						
Bl 1	- Bristol Beaufort Mk I	Li 8	- Consolidated Liberator Mk VIII						
Bl 4	- Bristol Blenheim Mk IV	Mo 68	- de Havilland Mosquito Mk VI(PR)						
Ca 1	- Consolidated Catalina Mk I	Su 3	- Short Sunderland Mk III						
Ca 3	- Consolidated Catalina Mk III	We 10	- Vickers Wellington Mk X						
Ca 4	- Consolidated Catalina Mk IV	We 11	- Vickers Wellington Mk XI						
Ca 5	- Consolidated Catalina Mk V	We 12	- Vickers Wellington Mk XII						
Hd 3	- Lockheed Hudson Mk III	We 13	- Vickers Wellington Mk XIII						
Hd 5	- Lockheed Hudson Mk V	We 14	- Vickers Wellington Mk XIV						
CC Coastal Command					SEA	South East Asia			

their range by removing equipment not strictly necessary for anti-submarine work and replacing it with additional fuel tanks, these first very-long-range (VLR) Liberators, armed with eight depth charges, could provide protection from seven hundred to one thousand miles out from base and still spend at least one-third of their time in the vicinity of a convoy, on a sortie that might last as long as fourteen hours.⁶

The flying-boat squadrons were due to be upgraded when deliveries of Consolidated Catalinas, expected in early 1941, would permit the replacement of obsolete Supermarine Stranraers and Saro Lerwicks. The Catalina's twenty-five-hour endurance allowed it to provide convoy escort up to six hundred miles from base, although its slow cruising speed of only 115 miles per hour

was a disadvantage. Of the remaining aircraft in the command, the Short Sunderland flying-boats had an effective radius of 440 miles, the Wellingtons and Whitleys 340 miles, while the Lockheed Hudsons could manage no more than 250 miles.⁷

In the spring of 1941 German tactics in the North Atlantic revolved about single U-boats shadowing convoys during daylight hours – always on the surface, since their underwater cruising speeds were insufficient to keep up with even the slowest convoys – and then, through Admiral Karl Dönitz's headquarters (Befehlshaber der Unterseeboote, or BdU), calling in other boats to attack at night. 'The large number of convoys attacked at night after air cover was supplied the preceding day demonstrated that the existing policy of providing as many convoys as possible with at least a few hours' escort by a single aircraft was failing to drive off shadowing submarines,' explained the author of volume II of this series, *The Creation of a National Air Force*. If the shadower could be suppressed, however, so that he could not report on the convoy's location and progress, the whole pack could be thrown off the scent. And if the longer-range aircraft slowly becoming available were used to sweep areas beyond normal U-boat shadowing range, on the convoy's axis of advance, 'studies of past operations suggested that aircraft with this roving commission were three times as likely to find U-boats as aircraft closely circling a particular convoy. Nevertheless, constant close escort remained essential for convoys being shadowed, especially in the hours before sunset when the U-boats were closing to their attack positions.'⁸

The Germans were in the process of expanding their submarine fleet from a mere thirty operational boats in April 1941 to sixty by August, of which thirty-nine were in the Atlantic. Coastal Command therefore needed more than just better operational procedures to keep up. By the end of April 1941 the delivery of Catalinas from the United States had enabled the Air Ministry to re-equip five anti-submarine flying-boat squadrons (increasing their initial establishments from six to nine machines at the same time), and to form another flying-boat squadron at the end of June. The new squadron, No 413, was the third RCAF unit to be formed in Coastal Command since the Ralston-Sinclair Agreement had been signed in January⁹ but, as had been the case with previous RCAF accretions, its aircrew would initially 'be found from the RAF except in so far as RCAF personnel [are] immediately available.' They would be replaced, however, 'as pilots, etc. of the RCAF of requisite experience become available.'¹⁰

In anticipation of its formation, Air Commodore L.F. Stevenson, the RCAF's air officer commanding (AOC) overseas, had telegraphed Ottawa on 28 June, 'asking whether Canada could supply a Commanding Officer, one or two Flight Commanders or other experienced pilots' for the new unit. He found it 'regrettable that an RCAF Flying Boat Squadron should form in the UK and the

⁷ The first RCAF units formed in Coastal Command were, as we shall see, Nos 404 and 407 squadrons, which spent their first eighteen months of operations engaged in anti-shipping and long-range fighter duties.

RCAF not be in a position to supply a large percentage of the Flight Commanders and Crews. Flying boat operations is one [sic] in which the RCAF is particularly well experienced, and even though coastal operations in Canada are important, it is felt that provision of RCAF crews for No 413 Squadron should be given every consideration.' Although Ottawa was able to find a commanding officer and two flight commanders for him, 'all qualified on Catalinas,' Stevenson was told that 'no further trained pilots can be spared at present.'¹⁰

In part, at least, that was because Ottawa, which often had trouble looking beyond the immediate needs of the BCATP and Home War Establishment, was busy forming a Catalina squadron of its own in Eastern Air Command. It would seem, nevertheless, that enough graduates of GR schools – the primary training grounds for anti-submarine flying – were being posted overseas to provide No 413 Squadron with a reasonable percentage of Canadian aircrew. Knowing that fifteen were due to arrive in the United Kingdom in June, forty in July, and a further twenty-four in August, Stevenson suggested to the Air Ministry that they be posted directly to the Canadian squadron.¹¹ But, in a strange piece of bureaucratic logic, the Air Ministry argued that it was more important to keep Coastal Command's OTUs filled with GR-trained pilots than it was to provide qualified Canadian aircrew for a soon-to-be-operational RCAF squadron. The diversion of pilots 'directly to squadrons,' Stevenson was told, 'would almost certainly lead to OTU capacity being left unfilled.'

There is not, of course, the same objection to sending E[mpire] A[ir] T[raining] S[cheme] produce which has not been through the GR Schools in Canada direct to 407 and 413 Squadrons because the majority of pilots required for filling the OTUs must be GR trained. I think, however, we can compromise over this question. Of the arrivals you refer to ... 8 (but only 8) are now in this country. There will be no OTU vacancies to absorb them before 26/7/41. I therefore suggest that these pilots should be posted into 407 Squadron now, with the proviso that if, on the 26th, we cannot meet the Coastal OTU requirements from subsequent GR trained EATS arrivals together with the output of the home schools, we will temporarily transfer these 8 pilots to a[n] OTU to finish their operational training. Similarly, if in the future the GR trained material available for OTUs should be in excess of OTU requirements the surplus should be posted direct into 407 and 413 Squadrons.¹²

Although this bizarre arrangement clearly placed the needs of the RAF's training organization ahead of those of RCAF operational squadrons, Stevenson accepted it; and when 413 Squadron began forming in July 1941, at Stranraer in southwest Scotland, many of its aircrew came from RAF Blenheim squadrons. The most notable influx of Canadians came in mid-August, when the three officers promised by Ottawa arrived on the scene. Wing Commander R.G. Briese, who had joined the RCAF in 1932 and was regarded as a 'highly capable officer in all respects,' had already commanded an operational training squadron at Patricia Bay, BC. His two flight commanders, Flight Lieutenants L.H. Randall and J.C. Scott, were posted from No 5 (BR) Squadron in Dartmouth, NS. More Canadians arrived in September to take over the non-flying

duties of medical officer, squadron adjutant, and engineer officer. Still, when the squadron completed its training at the end of September, only 10 per cent of its complement was RCAF.¹³

Briese was already hard at work trying to replace his RAF aircrew with Canadians, telling Stevenson that 'pilots trained on boats in No 13 OTS (RCAF) will not require to be sent to an OTU here. They should, however, have a period of about one month to qualify as second pilot before assuming crew duties.' Although he was personally familiar with seven pilot officers from his former command whom he would have welcomed on his new one, and had passed on their names to Stevenson (who had raised the matter with the Air Ministry), no one on his list was posted to No 413.¹⁴

The squadron began the move to its first operational base at Sullom Voe, in the Shetland Islands off the north coast of Scotland, on 3 October 1941. It arrived there 'with high morale and great expectations' despite the bleak surroundings and poor weather that plagued a station which was 'a mixture of peacetime Camp Borden (without Wasaga Beach), Sable Island and Alliford Bay.' Flying conditions were often abysmal. Although the islands were 'quite low, the highest point being under 1500 feet ... low [cloud] ceilings prevail, and it is often necessary to approach base at 100 feet or less.'¹⁵

After two days of familiarization flying, No 413 undertook its first operation, escorting a convoy east of the Orkney Islands on 5 October, and it mounted fourteen more convoy patrols over the next two weeks, all of which were uneventful. On 22 October, however, a photo-reconnaissance of the Norwegian coast was ordered by Group HQ, a mission which, of necessity, involved flying well within range of enemy fighters and far beyond the protection of friendly ones. The slow, cumbersome Catalina had never been designed, or armed, to survive air-to-air combat, and, in the absence of cloud cover, the sortie was something of a suicide mission. Indeed, as one of the flight commanders reported, it was later learned that the mission 'had been refused for this reason by another squadron.' The obvious degree of risk involved may explain why Briese chose to fly on this operation himself, as a supernumerary pilot. Catalina G took off in the dark hours of 22 October and was never seen or heard from again.¹⁶

The loss of Briese was a blow, and others would follow. Gale-force winds and frequent snow, sleet, and hail severely limited operational flying and reduced the effectiveness of the few patrols that could be carried out over the next few weeks. During one particularly bad storm, on 11 November, four machines were sunk at their moorings and the loss did not please Coastal Command Headquarters at Northwood. Within a week, the acting squadron commander, a Canadian in the RAF, had been replaced by Wing Commander J.D. Twigg, 'a clever, hard working officer who has personality [and] set a fine example by his flying leadership.' The RAF station commander was also transferred to other duties the following month.¹⁷

Under Twigg's hard-driving command, No 413 Squadron's record of aircraft serviceability improved steadily, despite the difficulty of working on unprotected boats that were often coated with ice in the early mornings. But ground-