

(about a thousand of them Canadians) while landing more than 74,000 troops in two bridgeheads, one fifteen miles wide and five miles deep and the other five miles wide and four miles deep.<sup>10</sup>

From the German point of view, 'first developments were unpromising' in the opinion of General Walter Warlimont, then Hitler's deputy chief of operations staff.

The OKW Operations Staff had been allowed to know little of the conduct of the war in the air; we were therefore unpleasantly surprised to find that the Gruppen, the standard unit used by us to order and by OKL [Oberkommando der Luftwaffe] to report reinforcements, when they actually appeared on 6-7 June were at only a third of their planned strength, in other words consisted only of ten instead of thirty serviceable aircraft ... The first few 'jet fighters,' 'miracle weapons' like the rockets upon which Hitler had counted so much, made little difference; the enemy's air superiority was even greater than had been expected and from the first day of the invasion the Luftwaffe's inferiority was so great that it became the prime factor in making any command action or movement well nigh impossible.<sup>11</sup>

Warlimont's report was heavily tainted by interservice rivalry, and German soldiers would continue to blame the Luftwaffe for many of their troubles in the months to come, but it was the air arm's inherent weakness, vis-à-vis Allied air forces, that made it such a convenient scapegoat.

Luftwaffe reinforcements, however, began to arrive at the front starting on D+1, so that the odds of Canadian pilots engaging the enemy in the air increased slightly and defensive operations quickly settled into a routine punctuated by brief but turbulent skirmishes. The monotony of its first shift on 7 June ended in spectacular fashion for No 401 Squadron. At about 1030 hours the Canadians were flying through cloud at 2000 feet when they narrowly avoided entangling themselves in the cables of barrage balloons flown by some of the ships below. Just as they banked and turned, one of them saw a Junkers 88 collide with a balloon cable and crash to the beach. The German was not alone. 'Suddenly the air seemed full of Ju 88s,' and soon twenty-four machines were involved in aerial combat, flying in and out of cloud, and trying to dodge the balloons as well as the anti-aircraft fire thrown up by hundreds of ships anchored off-shore. It was, of course, a one-sided combat. When the mêlée was over, eight Canadians between them claimed six enemy machines destroyed, and one probable. On its second patrol, the squadron claimed two more destroyed, for a total loss of one.<sup>12</sup>

Actively engaged in avoiding the Luftwaffe were the pilots of No 400 Squadron as, in the days following the landings, they carried out frequent reconnaissance flights over enemy territory to monitor Wehrmacht activity. Although enjoying considerable independence once they were in the air, the photo-reconnaissance pilots were given detailed guidance before takeoff by an army liaison officer and his RCAF counterpart, who plotted the positions of the

objectives for the pilots' map traces and arranged them in order of priority. Pilots were also briefed concerning the coverage required and the altitude at which pictures should be taken, while the wing intelligence officer provided information about Flak concentrations and enemy air units. Upon returning to base, the pilot made out a report to accompany his pictures while the photography section removed the camera magazines from the aircraft and developed the film, running off three prints of each negative for the Army Photo Interpretation Section, where they were carefully examined and the information obtained forwarded to corps or army headquarters. Throughout the Northwest Europe campaign, two RCAF Mobile Field Photographic Sections based at the group's rear headquarters would each reproduce hundreds of thousands of aerial photographs every month.<sup>13</sup>

Once troops were ashore, the two RCAF Mustang squadrons began to apply the training that had been part of their syllabus since the days of Army Co-operation Command. For No 414, the hours spent practising its army support role had always exceeded operational flying time except for the last two months of 1942 and, of course, May 1944. Until the eve of D-Day, after almost two years as an operational unit, the squadron had flown some 1400 sorties; in the three months following D-Day it would equal that number, and the nine hundred hours flown operationally in the invasion month would remain a unit record until the end of the war.<sup>14</sup>

With the exception of some unsatisfactory artillery spotting (for which the Mustang was a thoroughly unsuitable aircraft) and a few photo-reconnaissance sorties, both fighter-reconnaissance squadrons concentrated their efforts on tactical patrols. These patrols combined routine sorties, as teams searched the roads leading to the beachheads at first and last light, with impromptu ones during the day as they flew tactical reconnaissances in accordance with army requests. German dispositions were well known, and the Mustangs could warn of any developing counter-attack on the part of 21st, 12th SS, or Panzer Lehr divisions. In doing so pilots were briefed before taking to the air, but they transmitted vital information, such as the location of troop concentrations or Panzers, directly to Kenway, the Group Control Centre, which in turn relayed the information to the army or other air force units. Despite new tactics, which saw the Mustangs operate in fours, with two aircraft for observation and two as escort, these patrols were costly.<sup>15</sup>

Flak was everywhere; the German front-line bristled with concentrations of small calibre (20- and 30-millimetre) anti-aircraft artillery made invisible (until they opened fire) by the arts of camouflage; and, though flying above three thousand feet put pilots out of range of light Flak, they were still within the range of heavier guns, so that maintaining a straight course was hazardous, if not suicidal. Thus a typical flight pattern involved a weaving dive from twelve to ten thousand feet, then climbing back to eleven thousand after thirty seconds or so. No 440 Squadron lost three machines to Flak on 7 June, although one pilot managed to make his way back to Allied territory three days later.<sup>16</sup> On the 8th, No 416 suffered its first casualty of the campaign when Warrant Offi-

cer J.C.R. Maranda, patrolling Utah beach and the Cotentin area, was hit by anti-aircraft fire and tried to make for an emergency landing strip in the British sector.

He jumped over the beach, but wind drifted him about a quarter of a mile off-shore and some two miles from the ships and tenders lining the assault beach. S/L Green called 'Research' (the Controller on the Battleships) and asked for a tender, which apparently set out before W/O Maranda reached the water. Apparently he was unable to release his parachute, and the remaining three pilots of Red Section, who circled the spot to direct the tenders, saw him struggling with it. After about five minutes the parachute sank, dragging W/O Maranda under the surface.<sup>17</sup>

The toll continued to mount in the days that followed, No 414 Squadron having six pilots killed or wounded between 9 and 23 June, while on the last day of the month three machines from No 421 were holed in an action that destroyed one truck and damaged another, hardly a fair exchange.<sup>18</sup>

Flak alone, however, was no deterrent, and the Allied bombing and interdiction effort was delaying the approach of I SS Panzerkorps, III Flakkorps, and the paratroopers of II Fallschirmjägerkorps into the Normandy battle area. 'Our operations ... are rendered exceptionally difficult, and in part impossible, by the strong and often overwhelming superiority of the enemy Air Force,' Generalfeldmarschall Erwin Rommel complained.

The enemy has complete control of the air over the battle area up to a distance of about 100 km behind the front, and with powerful fighter-bomber and bomber formations, immobilises almost all traffic by day on roads or in open country ... Movements of our troops on the battlefield by day are thus almost entirely impossible, while the enemy can operate without hindrance. In the country behind, all roads are exposed to continual attack, and it is therefore very difficult to bring up the necessary supplies of fuel and munitions ... Neither our flak nor our Air Force seems able to put an end to these crippling and destructive air attacks. Our troops are fighting as well as they can with the means available, but ammunition is scarce, and can be supplied only under the most difficult conditions.<sup>19</sup>

Unable to compete by day, the Germans threw what aircraft they could into the struggle after dark. Flying from English airfields, but under the control of mobile GCI sets which went ashore with Allied ground forces, the Mosquito night-fighters of No 410 Squadron flew over 650 beachhead patrols and were credited with destroying twenty-eight enemy aircraft for the loss of only two crews (compared with No 421, the highest-scoring Spitfire squadron, which claimed twenty and lost seven). Over the same period No 409 flew a similar number of patrols, and received credit for twenty-two victims at a cost of seven men – two of them when their Mosquito struck debris from a Ju 88 they had just destroyed over Caen. The Luftwaffe, meanwhile, managed to sink only the destroyer *Boadicea* and sink or damage seven smaller craft by direct attack,

although sixteen other Allied vessels were lost when they struck mines, most of which had been laid by air.<sup>20</sup>

Still smarting from having to fly obsolescent Beaufighters, No 406 Squadron saw rather less action. It had been assigned to Channel patrols far removed from the activity on shore, and these were, without exception, completely uneventful. To relieve the tedium, crews were assigned a few night Rangers over northern France, but, as the moon was in its dark phase, little could be seen on the ground and map-reading was 'impossible.' 'It is now evident,' the squadron diarist asserted, 'that these [night Rangers] are more or less useless.'<sup>21</sup> The mood in the squadron worsened as June progressed. 'A very serious shortage of aircraft exists at present,' the ORB explained on the 16th, 'due to losses by damage and a high percentage of others requiring parts. Most of the aircraft on hand and serviceable have only a few hours to go before major overhauls are necessary, some being already due, and flying has had to be curtailed to the bare minimum in order to conserve aircraft for scrambles and necessary operational sorties.'<sup>22</sup>

By mid-July only nine machines, a mixture of worn-out Beaufighters and Mosquitoes, could be considered airworthy, and Wing Commander R.C. Fumerton penned a brutally frank letter to ADGB headquarters. The first RCAF pilot to destroy a German aircraft at night, Fumerton had served in North Africa and Malta, brought his score up to fourteen, been awarded the DFC, and risen to the rank of wing commander. Blunt and direct, fiercely loyal to his subordinates, he was not one to mince words.<sup>23</sup>

Since coming to Exeter and thence to Winkleigh, Mosquitoes still hanging at the end of the rainbow, the hours on our Beaufighters gradually expired, some of them being replaced by old aircraft from 409 Squadron, 410 Squadron and various other squadrons ... We now find ourselves with more time expired aircraft about to be replaced by near time expired aircraft – still Beaufighters.

... Such a record would make even a Japanese diplomat red with rage. If it were only a case of swallowing pride the solution would be simple, but as Commanding Officer of this Squadron, I must flatly refuse to have the aircrew jeopardizing their lives by continually flying the 'clapped out' aircraft of other squadrons.<sup>24</sup>

Fumerton's exasperation apparently shocked the hierarchy into action, and on 20 July the 'clapped out' machines were supplemented by ten Mosquito XXXs fitted with the latest Mark X AI. The next day at least one of the new Mosquitoes, along with a Beaufighter, was in the air, guarding shipping off the Brittany peninsula, and, when a formation of seven Do 217s approached a flotilla of destroyers, the two aircraft accounted for three of them. 'This,' commented the ORB, 'coupled with the arrival of the new equipment, has raised morale and keenness to a high pitch.'<sup>25</sup>

But it was not to last. On 25 July three crews disappeared on a day Ranger over northern France. Also, Fumerton had obviously gone too far with his blast to ADGB, for the AOC of No 10 Group, Air Vice-Marshal Charles Steele, was



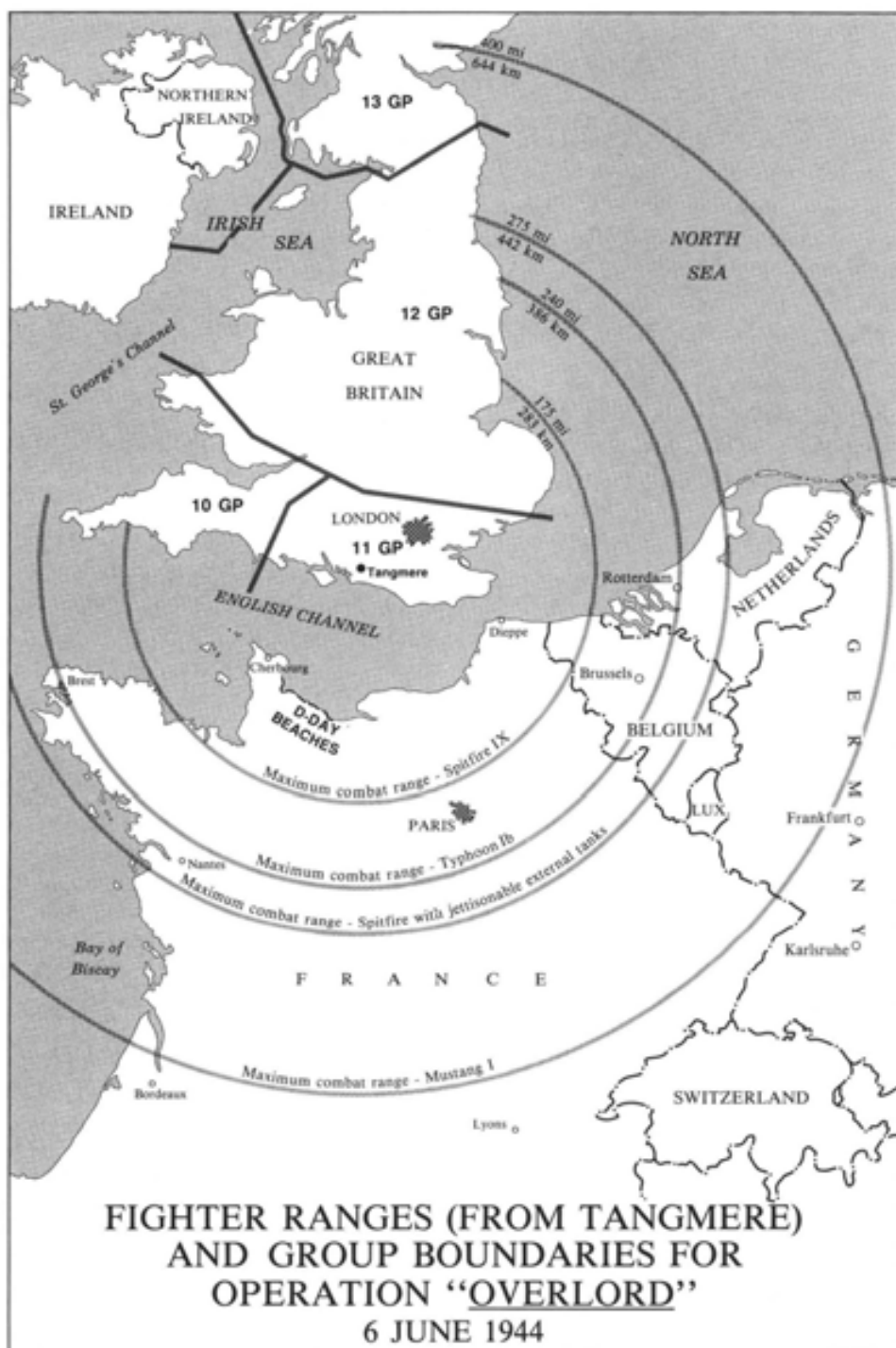
soon asking that he be posted. On 26 July the squadron commander was unceremoniously transferred to Canada, ostensibly for having reached his physical 'limit,' and replaced by one of his flight commanders, Flight Lieutenant D.J. Williams. The squadron diary declared that the men were 'shocked and stunned' at the move.<sup>26</sup>

With their greater range, Mosquito squadrons based in England could still carry out lengthy patrols over the beachhead. Spitfires and Typhoons, in contrast, wasted precious and limited endurance flying across the Channel and back with each sortie, so the construction of airfields in France became a priority. Two servicing commandos and construction wings moved to the Continent on D+2 and began work on the first of the Normandy airfields near Ste-Croix-sur-Mer, which had fallen to Canadian troops on the first day of invasion. Their initial task was to establish emergency landing strips, where aircraft in trouble could avoid the hazards of crash landing or baling-out over the Channel and which, once completed, could be developed into refuelling and rearming strips for British-based units. Later still, they could be improved and graded to the status of landing grounds which would serve as permanent wing facilities incorporating twelve-hundred-yard long, hard-surfaced runways.<sup>27</sup>

Work progressed despite enemy shelling, and at noon on D+4 Nos 303 (Polish) and 130 Squadrons flew in to a strip near Gold beach, the first RAF units since 1940 to land in France. Later, 144 (RCAF) Wing refuelled and rearmed at B-3, near Banville, and its squadrons became the first in four years to operate, at wing strength, from French soil.<sup>28</sup> A few days later the wing moved its base to B-3, much sooner than had been anticipated.

No 144 Wing with a strength of 39 officers and 743 other ranks at the end of May, was apparently originally scheduled to cross the Channel somewhat later than the other Spitfire Wings. 'A' Echelon received its initial warning only on June 1st. The following day instructions were received that the Advance Party was to move on June 5th, while the Main Party was to be in readiness from 0600 hours on June 4th. Great consternation ensued when instructions were received on June 3rd that the Main Party was to move to the Concentration Area at 0700 hours on June 4th, a full day before the Advance Party was scheduled to leave. There were violent protests that 'someone had boobed,' and appeals to higher authority for delay, but there was no postponement of effort. By working virtually all night, Wing personnel completed preparations on time. The Main Party moved off at exactly 0700 hours, and arrived at Old Sarum precisely on scheduled time. Here they remained until the move to the marshalling area, which began shortly after reveille at 0330 hours on June 9th.<sup>29</sup>

Pilots and groundcrew left the comforts of Britain behind in moving to the Continent. For a time, at least, sleep became a rare and well-appreciated luxury, home was often a slit trench, and dust saturated clothes, bodies, and food. By mid-June such moves were routine and avoided the kind of panic that had accompanied No 144 Wing's relocation. They were also quick. When one No 403 Squadron pilot took to his parachute after his engine failed over France, he landed unhurt within friendly lines and, as a downed flyer, had little



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difficulty hitching a ride on a destroyer back to England; but when he arrived at Tangmere he found his unit had left for Normandy.<sup>30</sup>

Luftflotte 3, meanwhile, was also reinforcing, and one hundred more German fighters arrived in France by 10 June. The aerial component of Hitler's response to the invasion nevertheless involved not so much piloted aircraft as his weapons of revenge, the totally indiscriminate V-1 'flying-bombs,' the first of which were launched at London on the night of 12/13 June. By 0600 hours on the 16th about 120 missiles had left the ground, of which about 30 per cent reached Greater London; and at a commanders' conference that morning Leigh-Mallory, now AOC-in-C of the AEAf, reluctantly accepted that Second TAF and the Allied bomber forces would have to help in the Crossbow campaign by attacking launching sites.<sup>31</sup>

Coningham allocated seven squadrons to the task, including the Canadian Bombphoons. An attack by No 438, conveniently still based at Hurn, close to England's south coast and northeast of Bournemouth, exemplified the difficulties posed by such bombing operations.

This Squadron was responsible for the standby of two pilots at the end of the runway from 0430 hours to 2315 hours but, regardless of that, squadron made three separate 'ops' sorties against a NOBALL target, landing at Manston to refuel and re-bomb for the second two. On the first there were eight a/c, on the second six and on the third five. On the first sortie the target couldn't be found but a successful attack was made on a 10 vehicle convoy. On the second the target was bombed with only five aircraft. Two aircraft were abortive due to engine trouble. Although there were no direct hits on this trip, there were very near misses. On the third trip, five aircraft found the target again obscured by clouds and the bombs were dropped on the West wall of France as they returned to Base.<sup>32</sup>

The squadron diary did not define just how close a 'very near miss' was, but on the whole such bombing was ineffective. Thanks to large concentrations of light multiple Flak it was also so costly that, after 20 June, fighter-bomber attacks on V-1 sites all but ceased, the task being left to medium and heavy bombers that attacked – often fruitlessly – from heights above the range of light anti-aircraft guns. Such was the threat of the V-1, however, that fighter-bombers still had a role to play – mounting anti-Diver patrols on the English coast, searching for flying-bombs in flight primarily to give the ADGB and British anti-aircraft batteries advance warning.<sup>33</sup>

One of the squadrons receiving such warnings was No 418, whose activities saw an abrupt change from supporting Bomber Command's interdiction campaign over France to dealing with the hundred or so V-1s the Germans were now launching every day. ADGB assigned twelve units to the task of intercepting these flying-bombs: eight single-engined squadrons (equipped with Tempest Vs, Typhoons, and Spitfire IXs and XIVs) and four twin-engined Mosquito squadrons. The Mosquitoes were intended for night interceptions, and because the V-1's bright exhaust made it visible for miles, the Intruder squadrons which

had not yet been equipped with AI were among those recruited. No 418 flew its first anti-Diver patrol on the night of 16/17 June.<sup>34</sup>

Searching for flying-bombs dominated the squadron's activities for the next ten weeks and by the end of August crews had flown nearly four hundred sorties, but their efforts were not well-rewarded – at low altitudes Mark II Mosquitoes were barely fast enough for the work (it was usually necessary to attack from a dive) and a crew had to be either very skilled or very lucky to bring down a bomb. Flying Officer D.N. McIntosh, a navigator/radar operator, later described one chase:

I looked down. Sure enough, there was a red glow, the exhaust of a V-1. It seemed to be moving fairly slowly, poor judgement on my part. We went into a dive to get more speed. The V-1 was ahead of us. In the blackness, of course, all we could see was that small burning sun in front of us. Because the V-1 was smaller than a plane, you had to get fairly close to get in a telling shot.

We were doing more than 350 mph by this time but we weren't gaining. In fact, we were dropping back a bit. In a minute or so, we had to face the truth that the damn thing was running away from us.<sup>35</sup>

No 402 Squadron's experiences were somewhat different. In early August it began to switch over from the Spitfire IX to the Spitfire XIV which, with its Griffon 65 engine, could overtake flying-bombs. Moving to Hawkinge on the 9th to begin V-1 patrols, pilots declared themselves happy with their new aircraft and their new role. 'The view of the Channel from Hawkinge is excellent and we can watch these bombs coming in from the other side very easily. Sometimes four or five come over almost together and all personnel are becoming extremely "sound" conscious.' Seeing and hearing the missiles was not enough, however, and for the first few days No 402's pilots experienced considerable frustration, mounting a hundred sorties without success, while the anti-aircraft gunners in the vicinity averaged at least 60 per cent hits. Two days later the squadron scored for the first time, downing three, and its eventual tally would rise to five.<sup>36</sup>

By mid-June Spitfire squadrons were thus allocated tasks depending on which formation they belonged to, those of ADGB concentrating on defensive duties, either searching for flying bombs or patrolling over the Normandy beachhead, while their colleagues in No 83 Group, along with the rest of the AEAf, turned to the offensive. Once this change had occurred, 'there was not a single sortie which did not result in some kind of action.' On 14 June, for example, Nos 126 and 144 Wings escorted bombers to the E-boat pens at Le Havre, the raid being something of an experiment – though a highly successful one – as Bomber Command's first attempt at daylight operations since No 2 Group's move to the tactical air force in May 1943. Only one Lancaster was lost, and No 127 Wing 'covered itself with glory' when eight pilots of No 421 attacked a formation of about twenty FW 190s and Me 109s and came out of the *mêlée* claiming eight victories, two probables, and two

damaged, for the loss of one pilot and three aircraft (two of the latter in crash landings).<sup>37</sup>

Fighter squadrons now employed a number of different tactical formations depending on role and circumstance. Perhaps the most useful, especially when the enemy came up in strength, was the 'fluid-six,' developed in North Africa and offering flight commanders both additional flexibility and greater firepower. Such developments, however, could not mitigate against simple rotten luck, one section of four from No 443 Squadron disappearing on 16 June when it ran into a large number of Focke-Wulf 190s.<sup>38</sup>

At the time we knew nothing of the circumstances, only the bare fact that a complete section of four aircraft had failed to return from a scramble. The four aircraft had taken off late in the evening and eventually located a force of Focke-Wulfs, which they attacked. In the fading light they were not aware that they had engaged a far superior force. The Germans, realizing their advantageous position, stayed to fight, and all four Spitfires were shot down. [Flight Lieutenant D.M.] Walz's own aircraft was hit in the engine and the petrol tanks exploded. He lost little time in baling out and landed safely in a field. After some adventures on the ground he was eventually assisted by the local peasants and returned with the tragic story.<sup>39</sup>

The three others had been killed in their aircraft.

Flying the widest variety of missions was the Spitfire IX. Aside from protective patrols and sweeps in search of the Luftwaffe, Spitfire IXs also began to attack targets allocated to them by the army or to patrol designated areas searching for enemy transport. They continued to dive-bomb some of their objectives, with the usual mixed results. On 17 June twelve machines of No 443 Squadron set out to bomb four bridges east of the Caen canal but managed only two hits (while having two bombs hang up). Five days later, despite plastering a suspected ammunition dump near Caumont, there were no spectacular secondary explosions – possibly an indication that no dump existed. That same day 126 Wing sent Nos 411 and 401 squadrons on dive-bombing missions, but these proved somewhat embarrassing as both units entirely missed their targets.<sup>40</sup>

The more specialized Bombphoons generally enjoyed greater success. On 24 June No 143 Wing, with twenty-four aircraft, attacked the village of Cheux, an objective for 15th (Scottish) Division in Montgomery's Operation Epsom, due to open the following day; and although four of the forty-eight bombs missed, the others were accurate, both AEA and Second Army commending the three squadrons on their work. The need for ground troops to follow up immediately was, however, driven home by the 2nd Gordon Highlanders, who reported on the 26th that 'A very heavy storm broke just as the Coys started and it was obvious that there would be no opportunity for the promised air support,' resulting in some very bloody fighting. The 46th (Highland) Brigade, of which the Gordons were a part, echoed that view, stating that 'weather was bad and no air support was possible; the speed of the advance was in consequence slower than was hoped.' Rain was not, thankfully, a factor every-

where that day, and in an attempt to interdict possible German counter-attacks the wing's No 439 Squadron flew against bridges, experiencing extremes of failure and success. Of the three missions, the first, against the highway bridge across the Orne at Amaye, was completely off the mark; a second attack on the same target scored two direct hits and four near-misses, though the bridge still stood; and the third, against a structure at Thury-Harcourt, was a total success, ten direct hits completely destroying the target.<sup>41</sup>

Near the end of June, Operation Epsom, which was supposed to bring Caen within the grasp of Second British Army, ground to a halt despite support from Bomber Command and the fighter-bombers of Second TAF. What Epsom managed to do, however, was to bring out the Luftwaffe, as did the American capture of Cherbourg. 'They are putting more fighters up now,' Leigh-Mallory observed, 'in order to defend some of their more important rail movements.'<sup>42</sup> No 411 Squadron encountered fifteen FW 190s on the 27th, claiming to have destroyed one and damaged three, but losing one pilot captured. The following day the three Spitfire wings flew 314 sorties, 'and took an amazing toll of enemy aircraft,' according to the AFHQ narrative, 'twenty-six destroyed, one probably destroyed and twelve damaged,' though losing five pilots to Flak. On the last day of June Normandy-based Spitfires claimed a further eighteen destroyed and three damaged in 323 sorties, 144 Wing getting credit for an incredible (even given the usual inaccuracies of such claims) ten destroyed and one damaged in 112 sorties.<sup>43</sup>

Above the land battle, then, the tactical air forces had by and large achieved their primary objective of securing air supremacy over Normandy, an easier task than anticipated given the state of the German air force in mid-1944. Forced off their bases close to the front and operating from facilities around Paris, enemy fighters could spend little more time over the battlefield than their enemies, losing an advantage the Luftwaffe leadership had counted on to help make up for deficiencies in numbers and quality. Losses of up to 10 per cent on one operation were not unusual, and in June RCAF pilots alone claimed a hundred German aircraft destroyed, two probably destroyed, and thirty-five damaged. No 421 Squadron led the way, claiming twenty destroyed; No 442 followed with fifteen, and No 401 with fourteen-and-a-half. No 411's claim of twelve-and-a-half destroyed in June matched the total achieved in its entire history before D-Day.<sup>44</sup> No doubt these claims were reported with the usual exaggeration, but the totals were still significant. Although German fighter production would rebound, the loss of so many pilots could not be made good.

The German army, too, was bleeding in France, 'losing an average of 2,500 and 3,000 men a day, yet reinforcements were crawling across France with fatal sluggishness, lapsing into confusion after they crossed the Loire and entered the most deadly fighter-bomber target zone.'<sup>45</sup> Prisoners of war captured in the course of the campaign served as expert witnesses to the effects of allied air power. 'A *Gefreiter* of the 2nd Panzer Division was a gunner in a Mark IV on the move (date and place unknown), when they were attacked from the air by fighter bombers. The bombs all missed narrowly, but several cannon shells pierced the armour in front of the turret, killing the W/T operator



and one other. The engine caught fire, so the crew abandoned the tank and watched it burn out.<sup>46</sup> They were not alone, as an Obergefreiter from the same division 'observed a Tiger tank brought to a standstill by cannon fire from the air, which ripped off the tracks.'<sup>47</sup> The commander of Panzer Lehr, General-leutnant Fritz Bayerlein, later argued that his formation, 'worth four armoured divisions of the kind used in the East ... should not have been sent into action in the West, because even this highly-trained and heavily-equipped Division had no chance under the conditions of air superiority which it was bound to meet in the West.'<sup>48</sup>

To maintain pressure against the Wehrmacht required Herculean efforts on the part of maintenance personnel. On 1 April the aircraft serviceability rate had been 74 per cent; this rose, in spite of the heightened tempo of operations, to 88 per cent on 5 June and dropped only marginally, to 85 per cent, as the number of sorties and hours flown began to peak. The Germans would have been envious, had they known; according to intelligence reports only about half their single-engined fighters were serviceable in mid-June.<sup>49</sup>

With Second TAF seemingly doing well, Air Marshal Coningham (who had fallen out with Montgomery, his fellow-egotist, near the end of the desert campaign) was energetically complaining about the latter's slow rate of advance. In his initial planning, Montgomery had hoped to take Caen on D-Day and the open country to the south of the city – ideal for airfields – in the days that followed. Indeed, Coningham had hoped to have a good number of his Spitfire and Typhoon squadrons established in France by the end of June, and all of them within seven weeks. Without French bases he did not feel he could launch operations at a rate sufficient 'to maintain air superiority ... [nor] harass enemy communications and delay the build-up of enemy ground forces which could ... concentrate in superior numbers against the bridgehead.'<sup>50</sup>

Sir Arthur Tedder, another critic of Montgomery's, was also concerned with the lack of elbow room for the tactical air forces. Tedder, as Eisenhower's deputy, was worried that, despite what airmen had achieved in slowing the movement of German forces to the battlefield, the Wehrmacht might yet 'assemble a reserve ... overcome the good effects of the Transportation Plan and drive the Allies back to the water's edge.' Broadhurst, more closely involved in day-to-day operations, was less worried<sup>51</sup> and, in any case, the front did begin to move in July as Second British Army, assisted by the heavy bombers of the US Eighth Air Force and Bomber Command as well as the mediums and fighter-bombers of Second TAF, moved on Caen, taking most of the city on the 9th. For the tactical airmen, the most immediate benefit from the liberation of the city was the removal of 'a strong enemy Flak point from the pilot's consideration.'<sup>52</sup>

In the Typhoon squadrons, ground support operations were the order of the day as Second Army tried to hammer its way down the road towards Falaise. Aircraft waited at readiness until called upon, but many missions ended in failure and frustration, No 438's attempts on 9 July being typical: 'It was an Army Co-op effort and was not successful. The Squadron failed to find the target at the proper time and as it was a bombing show very close to our own

line only one pilot recognized the target well enough to drop his bombs.' No 439 was more fortunate, sending nine aircraft against vehicles in a small wood southwest of Tilly, all of which managed to drop their bombs in a tight group and follow up with strafing attacks. Directly in front of 50th British Division (which Canadian Typhoons had supported on D-Day), the copse may have contained elements of the redoubtable Panzer Lehr, and the attack thus earned a congratulatory message from XXX Corps which concluded that, 'It was indeed an exhilarating sight for our forward troops.'<sup>53</sup>

One squadron diarist noted that pilots 'realize to a greater extent what full support means to the Army after having had numerous conversations with troops in the front line.' Yet there was little they could do to make the average soldier more directly aware of their efforts. Always poised to take cover from the ubiquitous German mortars, constantly aware of the possibility of being sniped at, and most secure at the bottom of his slit trench, the infantryman rarely saw the fighter-bombers upon which his commanders relied so heavily. As one reconnaissance regiment observed, 'Visible air support is a great morale raiser for troops who do not understand what air support is when they can't see it.' A regimental war diary might mention a Typhoon attack once or twice in the eleven-month campaign in Northwest Europe, but no more.<sup>54</sup>

The average soldier was probably even less aware of the activities of the Spitfire squadrons which, while preferring to take on the Luftwaffe in dogfighting, did not hesitate to attack ground targets and often served as fighter-bombers. Jacks-of-all-trades like their RAF counterparts, the Canadian Spitfire squadrons were heavily involved in the July offensive, and even No 402 (still part of ADGB) began to escort bombers to France. As usual, weather often interrupted operations, but pilots had to be prepared to carry on as soon as conditions improved, and also had to be ready to change from one role to another.<sup>55</sup>

On 2 July, for example, No 401 Squadron waited until mid-afternoon to take off on a dive-bombing operation, but then had its target changed from a small town and crossroads to a couple of bridges eight miles south of Caen, where 1 SS Panzerkorps was headquartered. Its primary mission completed, the squadron then swept the area looking for Wehrmacht transport but sighted two dozen enemy aircraft instead. In the dogfight that followed Flight Lieutenant I.F. Kennedy shot down an Me 109 and Flying Officer W.T. Klersy destroyed another. 'F/L Kennedy's guns jammed after he had hit the Hun badly but he flew alongside the Jerry as he went in to crash. The enemy pilot waved frantically that he was through and had to crash land. He evidently thought he was going to receive the finishing touch. On crashing into a field the enemy kite was smashed completely.'<sup>56</sup>

Other successes followed. On 13 July No 441 Squadron, while on a reconnaissance in the Argentan area, southeast of Falaise, spotted a dozen FW 190s and claimed to have shot down ten without loss. The next day No 416 (which had been formed, it will be remembered, in November 1941) was engaged in a routine defensive patrol when it ran into a formation of Me 109s and experienced its most successful day to date, claiming seven destroyed and three

damaged in three combats, while suffering only one Spitfire damaged.<sup>57</sup> Under such mounting pressure, and suffering irreplaceable losses in pilots, German aircrew now looked on bad weather as a godsend; and the breather provided by summer storms was critically important to the German groundcrews, who could use the time to improve on the generally abysmal serviceability rates in their front-line units. After a bout of rain in July, for example, the technicians managed to get 65 per cent of the Luftwaffe's 450 aircraft in hand ready for operations – but it did them little good. No sooner were their machines flying again than the wastage rate began to climb.<sup>58</sup>

While usually engaged in protecting their own forward lines of communications, German fighter-bombers sometimes attacked the Allies' airstrips in the beachhead – against very long odds. 'Bags of excitement this afternoon when several Jerry Aircraft flew over our dispersal,' reported No 439 Squadron on 14 July. 'They were entertained with a great reception of Flak to the accompaniment of Spitfires. Our guests retired rather rapidly, leaving some of their numbers behind. After supper enemy aircraft again came over our dispersal probably much to their regret as they were just greeted by Ack-Ack, and chased about by Spitfires. One was seen coming down, hell bent for election. It hit the ground a few miles away and exploded.'<sup>59</sup>

At headquarters commanders worked to alter the organization within Spitfire wings in order to render them – so it was hoped – more efficient. Effective air support leans heavily on the smooth flow of information, where the delay between transmission and reception of a message is dependent, in no small part, on the number of hands it must pass through. On 14 July, in order to streamline communications, the Spitfire wings were reorganized and expanded from three-squadron to four-squadron formations and sectors were eliminated from the chain of command, for early experience in the bridgehead had demonstrated that No 83 Group's signals units were not up to the task of maintaining an uninterrupted flow of information between wings, sectors, and higher formations. The decision led to the disbandment of No 144 Wing – it being the most recently formed – with its squadrons transferred to 125 (RAF) Wing, 126 Wing, and 127 Wing.<sup>60</sup>

In the Mediterranean theatre, the experiences of No 417 Squadron mirrored those of its Spitfire brethren in Northwest Europe. The Luftwaffe in Italy was so weak that there could be no justification for keeping fighter squadrons employed exclusively on air superiority duties. Therefore, soon after Squadron Leader O.C. Kallio replaced a tour-expired W.B. Hay, three of the Royal Navy's Fleet Air Arm pilots were attached to the Canadians for three weeks to teach ground attack tactics. Racks for 500-lb bombs were fitted under the wings of the Spitfire VIIIs, and pilots began to practise bombing runs over nearby Lake Vico, with results similar to those in Northwest Europe – that is to say, mixed at best. Their first sorties as fighter-bombers occurred on 26 June with an uneventful attack on a crossroads near Aqualagna in which two of twelve bombs may have hit close to the target.<sup>61</sup>

As in France, such low-level attacks against ground targets were significantly more dangerous than combatting German fighters. Between the creation of the squadron in November 1941 and the end of May 1944, eight pilots had been killed, gone missing, or been captured as a result of enemy action; four of them in one day, on 19 April 1943, during the Canadians' first real introduction to air combat. In contrast, from June 1944 until hostilities ceased eleven months later, the squadron lost nineteen pilots, mostly to Flak, and at least ten more were forced down during this period, parachuting to safety behind Allied lines. Grim reality was foreshadowed in the death of one pilot in June and reinforced on 3 July when another pilot was killed by Flak; two more died within a week, one while attempting to strafe a truck.<sup>62</sup> In all, the shift to a ground attack role contributed to a six-fold increase in the squadron's monthly casualty rate.

As Allied armies pushed north, beyond Rome, No 417 first moved from Venafrò to Littorio (just outside the Eternal City) on 10 June, then to Fabrica on 17 June, where operations were washed out by rain for three days. (It was here that the unit formally converted to a fighter-bomber role.) On 3 July the Canadians reached Perugia, about eighty miles north of Rome, where they remained until late August. The new field had a good runway, and the men were able to pitch their tents in an orchard near the landing strip. The weather, however, was hot, dry, and oppressive, suitable for operations but not for comfortable living, and the only bathing facility was a small muddy stream. Flies and dust led to an outbreak of gastro-enteritis, though the use of flytraps and the new insecticide, DDT, eventually brought it under control. (There was also an outbreak of venereal disease, the squadron medical officer detecting eight cases during July and August.)<sup>63</sup>

During the summer Allied troops slowly drove the enemy back, with the southern half of Florence – that part of it south of the Arno River – falling on 13 August. The advance forced No 417 to shift bases again, and often; on 23–26 August it moved to Loreto airfield, twelve miles south of Ancona and within one mile of the Adriatic coast, the move leading the squadron diarist to reflect upon the importance of air power in the Italian campaign: 'First light this morning beheld a dusty caravan proceeding bumper-to-bumper through the treacherous, winding roads of the Appenines. It is very gratifying to know that our convoys of 100 or more vehicles can proceed, bumper-to-bumper, from one place to another with little fear of bombing or strafing [sic] from the enemy.'<sup>64</sup>

The writer had hit upon one of the most marked characteristics of the war in Europe at this time – the completeness of Allied air superiority and the freedom of movement it allowed. On 15 August I Canadian Corps, which had been in reserve in the vicinity of Foligno, on the western slopes of the Appenines, began to move across the mountains, preparatory to the assault on the Gothic Line which (it was hoped) would carry the Eighth Army into the Lombardy plain. 'A million shells were transported and 12 million gallons of petrol. The Canadian Corps alone moved some 280 carriers, about 650 tanks

and some 10,700 wheeled vehicles during the ensuing week.' The Germans knew about this move from their Italian agents on the ground, but the Luftwaffe was incapable of informing or interfering. During the summer of 1944 the Desert Air Force had twenty-three squadrons of fighters while the US Fifteenth Air Force added another twenty-four, for a total Allied force of not less than 650 fighters; in contrast, on 20 July there were just sixty-one available to the Germans in Italy.<sup>65</sup> As in Northwest Europe, the Luftwaffe in the Mediterranean could do little more than bewail its fate.

Between 26 June and 5 September the Mediterranean weather was perfect for flying, and pilots were up almost every day, sometimes on escort missions for medium bombers, but mostly on Rovers or armed reconnaissance sorties. Rovers began in mid-August, the name referring to forward observation posts, each with an air force officer and an air liaison officer who would select targets and then transmit their locations directly to the fighter-bombers.

A fundamental part of the organization was the provision of a 'Cab-rank' of aircraft timed to arrive in that area at regular intervals of about 30 minutes. These aircraft would be briefed at their airfields to attack pre-selected targets but, for a period of about 20 minutes before the attack, they would be required to orbit close to the forward line in order to give Rover an opportunity to call and brief them for the attack of priority 'fleeting' targets. If no call was received the aircraft would attack their original targets and return to base.<sup>66</sup>

Facing a similarly devastated Luftwaffe, airmen in France were also able to experiment with their tactics and organization, exploring ways to provide close air support to the army with as few delays as possible. The key, of course, was to get controllers close to the front, and to this end 'visual control posts' – armoured cars or tanks, in, or close to, the front line and fitted with radios to connect them with brigade HQs, the 83 Group control centre, and any aircraft under their direction – were organized and sent well forward. There they would either instruct aircraft already in 'cab rank' – on station, waiting for assignment – to a specific objective, or they could call for support from group and take over direction of the aircraft the latter scrambled. The similarity with Italian Rovers is obvious.<sup>67</sup>

After several years of development, trial, and error, it was now possible for hard-pressed regiments and battalions to call for quick (or 'impromptu') air support; and the time between request and response was reduced from an hour or so to a matter of minutes. At least that was so in theory: but army and group headquarters were not always co-located, and the army and air staffs sometimes spent considerable time in discussion 'before orders were issued for the engagement of the target.'<sup>68</sup>

It should also be noted, moreover, that impromptu tactical support figured fourth on the air force's list of priorities, behind the maintenance of air superiority (or, preferably, air supremacy), interdiction missions aimed at limiting the enemy's ability to maintain large forces in the field, and pre-planned close support. Though Pointblank and the ineptitude of the German high command

had allowed the achievement of the first some time before Allied armies stormed the beaches of Normandy, nagging doubts remained in the minds of British and American planners as to the kind of resistance their enemy would put up in the air. It was not until 14 June, as we have seen, that they felt sufficiently confident to allow tactical formations to take the offensive; and not until July that they seriously considered releasing substantial forces for close support work. Even so, the airmen involved learned the intricacies of their new role more or less on the job, for training in the necessary techniques before the campaign had been rudimentary, emphasis being given instead on the combat skills needed to fight off the Luftwaffe.

One of the first tests of the new close support technique was Second British Army's next attempt to bludgeon its way through the copse-dotted farmlands to the east of Caen – Operation Goodwood. As with previous attacks, this one, when it opened on 18 July, was preceded by a massive bombardment, 'one of the most awesome air attacks ever launched on ground troops,' which saw over 15,000 bombs falling on German positions on and near the Orne. Less typical was the reliance on tanks, especially those of the 7th, 11th, and Guards Armoured Divisions, in order to limit the mounting casualties to infantry formations. The mailed fist, however, was not up to such an ambitious undertaking and, after some initial success, the assault bogged down and came to a halt in bad weather on the 20th (the same day German officers attempted – unsuccessfully – to assassinate Hitler).<sup>69</sup>

Air officers blamed the loss of momentum on the army, the AOC of No 83 Group observing 'that if the armour had gone on, accepting more casualties, it could have reached Falaise that evening but this was an appreciation for the Army to make and he could therefore not table any official pronouncement on this aspect of the battle.' He had based his criticism on his understanding that Montgomery was prepared to lose four hundred tanks in the battle, but stopped instead after half that number became casualties.<sup>70</sup>

Broadhurst also criticized the army for its use, or misuse, of heavy bombers. Before the attack, he had produced a map of known enemy anti-tank positions behind the front line and had offered to have the bombers pummel them in a second pass – the first would concentrate on the German defensive crust – but Second Army refused on the grounds that its own tanks would be deep within German defences, among the anti-tank weapons, before that bombing could begin. The air forces did their job in the first phase, giving the 'outer edge of the enemy defensive area a terrific crack,' but, in the event, that was insufficient to guarantee success on the ground.<sup>71</sup>

The sad fact of the matter was, that despite years of training, Anglo-Canadian ground formations were not up to the task of breaking through well-prepared German defences. Inadequate cooperation between infantry and armour was a major weakness, compounded by an excessive reliance upon ponderous, set-piece, frontal assaults that wore the defenders down through attrition but cost the attackers dearly. The generals, having miscalculated the number of infantrymen needed for this kind of fighting, now found it next to impossible to make up the shortage. Even when commanders recognized these



problems, the middle of an offensive was no time to reinvent doctrine or retrain an army group, so the air forces were called upon to increase firepower to the point where German defences – it was hoped – would crack.<sup>72</sup>

Once the initial heavy air bombardment had ended, air support in Goodwood was the task of Second TAF alone. Rocket Typhoons and Bombphoons were on call throughout the attack to take out anti-tank guns or armour impeding the British advance, and one visual control post (commanded by Second Lieutenant P.M. Roberts of the 29th Armoured Brigade, the lead formation of the 11th Armoured Division) proved the potential of 'cab rank.' Operating from a Sherman tank, just as the offensive was losing momentum, this young officer directed fighter-bombers onto several targets, including a concentration of tanks in Bourguébus Wood, and Panthers and Tigers dug into houses in Bourguébus village, which elements of 7th Armoured Division were subsequently able to occupy as the limit of their advance. He also called on cab rank aircraft to destroy enemy tanks moving towards Bourguébus and a bridge near Soliers, but when another bridge came up as a target he had run out of the red indicator smoke shells he was using as target markers.<sup>73</sup>

Roberts's exploit was an exception to the general rule, however, the experiences of his divisional headquarters being more typical as its Visual Control Post (VCP) was put out of action in the first hours of battle. Later, 21st Army Group reported some dissatisfaction with the new procedures in its report on the Normandy Campaign: 'The Visual Control Post, as its name implies, was intended for visual control of aircraft. Experience has shown that in average country the number of occasions on which the apparatus can be sited on a feature sufficiently commanding to obtain a visual look-out over the target area, is too few to be of practical value.' Instead, the VCP, now referred to as a Forward Control Post (FCP) and with an airman added to its strength, stayed close to divisional or corps headquarters and briefed aircraft on the way to their targets. According to 21st Army Group, this system was the 'quickest and most effective form of intimate air support.' No 83 Group agreed, adding that the FCPs proved capable of maintaining contact with aircraft at twenty to twenty-five miles range thanks in great part to the heroics of maintenance staff, who managed to keep equipment functioning under very trying conditions and through intensive (and exhausting) operations. They could call on aircraft already in the air in their cab rank or at readiness on the ground, and then brief them on the way to the objective, with local artillery marking the target with coloured smoke.<sup>74</sup>

With the failure of Goodwood, Second British Army receded into the background of the battle for Normandy. The Americans began their massive right hook, Operation Cobra, on 25 July, while First Canadian Army undertook Operation Spring – the first phase of an intended advance from Caen to Falaise. As we have noted, First Canadian Army was formally associated with No 84 Group; but because the latter's headquarters and control centre would not arrive in France until 6 August, the job of organizing close support for the Canadians fell to No 83 Group on this occasion. Unhappily, that resulted in a jury-rigged communications system between No 83 Group, First Canadian Army, and Second British Army.<sup>75</sup> Spring was an unmitigated disaster. Lieu-

tenant-General Guy Simonds's II Canadian Corps failed to take any of its objectives, and though close air support might have been extremely useful, there is no evidence that any was requested. Total casualties were about 1500, of whom 450 died. 'Except for ... Dieppe,' the Canadian Army's official history observes, 'there is no other instance in the Second World War where a Canadian battalion had so many casualties in a single day ... The 2nd Canadian Corps had struck a stone wall.'<sup>76</sup>

The 'stone wall' made Typhoon operations significantly more complex. Intent on denying the approaches of Falaise to Montgomery for as long as possible, soldiers of what was left of the I and II SS Panzerkorps had prepared deep, thick-roofed dugouts all through the area of Verrières Ridge; and although these could still be bombed, the fuse settings required to penetrate them rendered the bombs much less effective against 'soft' targets of opportunity like transport or airfields. For a time, then, No 83 Group had lost some of its flexibility.<sup>77</sup>

As it was, the nearly static front in the Anglo-Canadian sector opened up when, having punched through the enemy's defences on 25 July, the Americans poured into his rear areas. By early August the German Seventh and Fifteenth Armies had been almost completely enveloped, so that, as General-leutnant Hans Speidel later remembered, 'Two army commands, four corps commands, nine infantry divisions, and about five Panzer divisions were being pressed together in a square about six to ten miles in size between Falaise and Argentan, under converging artillery fire of all calibers and exposed day and night to continuous bombing.' Those who could were struggling through the escape route to the east, which the Allies eventually called the Falaise Gap. After flirting with the possibility of launching an airborne operation to close the corridor, and deciding that it was too risky, Montgomery chose instead to use the tactical air forces to block the enemy's escape. From 4 August pilots were kept on thirty or sixty minutes readiness, and when they did fly targets were plentiful.<sup>78</sup> But with the front now increasingly fluid, mistakes were also common.

Wing Commander Judd led our squadron this afternoon in a Wing Show against an organized enemy defensive locality at Canteloup ... just East of Aunay-sur-Odon. The target was very near our bomb line and the weather was sunny but very hazy. Our own artillery was to lay Red Smoke as a signal to attack the target but no Red Smoke was seen. Wing Commander Judd then split the wing up into squadrons and led 439 Squadron down on some transport he had seen on the road just north of Aunay-sur-Odon. As the third man down released his 1000-lb bombs, he realized that the vehicles were our own. All our remaining aircraft held their bombs and released them safe at various other points ... Unfortunately, the six bombs released on the convoy were quite accurate and five or more MT were knocked out ... The entire incident was extremely unfortunate and it is hoped that none of our Army lost their lives as a result of this error.<sup>79</sup>

Such incidents did not diminish the Typhoon pilots' zeal in seeking out German transport; 'but the dry weather and the lack of defiles enabled the enemy

to carry out diversions of traffic across country when the main roads and railways were obstructed by bombing. In spite of the special effort of the Tactical Air Forces in trying to seal the gap ... it was not possible in practice to make such interdiction of this gap entirely effective.<sup>80</sup> Closing it could not be achieved by the relatively painless application of air power, but would require hard fighting on the ground.

Aspiring, above all, to come to grips with their German counterparts, the now-fluid front offered Spitfire pilots more opportunities to practise the less romantic aspects of their trade as the Luftwaffe worked ever harder to defend its airfields and the army's lines of communication. After an armed reconnaissance on 27 July, for example, No 442 reported that its pilots 'damaged more MT and gun sites. They sighted two enemy aircraft south of Liseux, gave chase to the Dreux area aerodrome where they were bounced by 40 Me 109s and FW 190s. The squadron was split and had the hottest time so far, the Huns showing plenty of offensive spirit.' No claims were made. That day No 401 met the enemy on more even terms, its twelve aircraft encountering fifteen, and had better luck, as 'a real dog-fight followed and the Squadron did itself proud,'<sup>81</sup> claiming eight destroyed.

There was also some excitement within the reconnaissance squadrons, in their case over technical changes, as policy-makers suggested in late July that they convert to the state-of-the-art Spitfire XIV or XXI. No 400, already equipped with unarmed photo-reconnaissance Spitfire XIs, pined for the excitement of the occasional dogfight; so much so that the arrival of an RAF armourer was interpreted as a sign that the squadron would convert to Spitfire IXs, 'and the approach of the day when the Squadron pilots would have a more positive reply to enemy aircraft than the usual "evasive action."' Two squadrons did in fact switch to new machines, with one flight from No 400 converting to Spitfire XIVs equipped with both oblique and vertical cameras (which became known as the Spitfire XIX), and No 414 re-equipping with Spitfire IXLFs with oblique cameras only. No 430 was supposed to get modified Spitfire XIVs when they became available, but those pilots in No 400 hoping for a more exciting combat role were disappointed as the Spitfire XIX, like its predecessor the Mark XI, was unarmed.<sup>82</sup>

To the Germans, fighter-reconnaissance units were an obvious danger regardless of how they were equipped. On 28 July, a typical day, weather forced the cancellation of several missions; but those pilots who managed to complete their tasks discovered the locations of over twenty tanks and even more transport, and No 430 managed to get excellent photographs of gun positions (for which it received a letter of congratulations from XII Corps) while the latter prepared to move against elements of II SS Panzerkorps as part of the general advance.<sup>83</sup> More complimentary messages came in on 2 August.

In addition to the photographs taken on the Photo/R missions, which were of pre-determined targets, pilots also photographed targets of opportunity encountered during tactical reconnaissance sorties ... The photographs were processed and interpreted immediately after their return, and some sixty tanks and twenty other vehicles were

recognized in the pictures. These were subsequently attacked by Typhoons with the result that thirty-seven tanks were destroyed and most of the mechanized transport.

The prompt detection of the arrival of such reinforcements, and the swift reorganization of air attack, was undoubtedly of the greatest value to the Army. That this value was recognized is indicated by a message received at 83 Group Headquarters, from 2nd Army on the morning of August 3rd: 'Forward troops signal, Great show put up yesterday. Very useful Tac/R and splendid work on Tank Concentrations. Thank You!'<sup>84</sup>

Most sorties were still in support of Anglo-Canadian formations grinding their way forward, especially VIII and XXX British Corps from 30 July to 6 August as they advanced through Caumont and Mont Pinçon respectively; but in the early days of August First Canadian Army began planning a breakthrough battle from the left of the Allied line, called Operation Totalize, in which Second British Army would play a supporting role. The Canadians had Falaise as their objective, a daunting task that would prove a severe test for commanders, staff officers, and soldiers alike.<sup>85</sup>

Available information indicates that the forward positions are supported by the bulk of the enemy's tanks and self propelled guns (many of which are dug in) whilst a proportion of the enemy infantry are employed on the improvement of the rearward position. They are accordingly available in this rearward position to form the nucleus of defence in the event of a break in by our forces. The enemy apparently relies on being able to get tanks and self propelled guns back to support the infantry available in the rearward position in the event of the forward position being penetrated and overrun. Thus, in effect, two operations are required to break in, break through, and penetrate fully the enemy defensive system in this area.<sup>86</sup>

Massive air support, including the aircraft of No 83 Group, was part of the solution, but only an intelligent and imaginative application of such resources would lead to success.

If all available air support is used for the break in on the enemy's forward defensive position, there will be no fire support available for the break through on the rearward defensive position except diminished gun support, unless a substantial pause is introduced, with resultant loss of momentum. If, on the other hand, the break in is supported by heavy night bombers operating at night, and all available gun support, the heavy day bombers and medium bombers together with such heavy night bombers as may be made available on the turn around will be available for the break through, at a time when gun support begins to decrease. In this manner it should be possible to maintain a high tempo in the operation through to its final objectives.<sup>87</sup>

On 8 August over a thousand heavy bombers pounded their targets until midnight, II Canadian Corps moving forward just before the last bombs fell, guided by artillery markers and artificial moonlight created with searchlight beams reflecting off clouds. The tactical air forces prepared to harass the

enemy at daylight, should he attempt to retreat, and hoped to rout him, but the ground attack did not move forward as quickly as planned. Typically, the Canadians were met by successive lines of infantry and anti-tank guns braced by dug-in Panther and Tiger tanks, which soon brought both armour and infantry to a halt.<sup>88</sup>

Results were disappointing from the army's point of view, but the air force judged its own success or failure according to different criteria, and on 9 August No 439 reported one of the most spectacular engagements of the battle as it supported Second Army's operations to the right of the Canadian offensive.

This job turned out to be the Christmas package of the day. The enemy were reported to have dug in at Jean Blanc, and created what promised to be a very troublesome foremost defended locality. Our squadron, led by F/L Scharff, took off at 19:15 hours carrying 500lb bombs to blast this foremost defended locality into submission. The heavy haze had dissipated somewhat by this time and the target was quite easily approached from the northwest at 6,000 feet. An almost vertical dive attack was carried out from the southeast and the entire west half of the village seemed to rise into the air. F/L Scharff led the boys back in a beautiful straffing [sic] attack from the southwest at 1,000 feet right down to the tree tops. All fields, bushes, and roads leading into the village of Jean Blanc from this direction were viciously sprayed by cannon fire. At this point our own artillery dropped more red smoke-shells on the northwest corner of the target so we roared in again with cannon talking! This time the attack was pressed home until some of the aircraft were in danger of being hit by ricochets as they zoomed over the town. A small orchard in the northwest corner of the town was sprayed unmercifully in this attack and the Jerries glimpsed in there, had to be a long, long way down into their slit trenches to escape it. A large wooden house was burning furiously and the entire village was choked in a mantle of smoke and dust. On the last attack the pilots turned away in a steep turn between the central church and the adjacent buildings. In this case to say that the mission was successful is a gross understatement even if written with a capital 'S.' All aircraft and all jubilant pilots returned safely to base, feeling that close support was rendered to our armies.<sup>89</sup>

The offensive, however, came up short of the mark. From 7 to 11 August the Canadians and British advanced nine miles, but the front stabilized before they could penetrate to Falaise, forcing them to prepare for yet another attack.<sup>90</sup>

While the Canadians planned the successor to Totalize, code-named Tractable, Typhoons continued to strike at German positions, but such intense effort led to strained conditions on the airfields, where the very dirt seemed to have allied itself with the enemy. 'Speaking of dust, we plow through about four inches of it whenever we come to Dispersal,' reported No 438's diarist. 'To help matters along, the road for tracked vehicles goes all along our dispersal tent and Orderly Room truck. When the wind blows in the wrong direction, we and all the equipment are caked with it. It's a peculiar dust, light as a feather and when one steps in it or a wheel plows through it, it mushrooms up just like smoke.' The solution was straightforward. 'For the first time in France, the runway was sprayed with water to reduce the hazard of take-off and landing,

due to heavy billows of dust. This should promote speedier take-offs and landings as considerable time is wasted waiting for dust to clear. A pipe line had been installed on both sides of the runway for this purpose and will prove invaluable once the system is organized.<sup>91</sup>

Just in time, as Allied land and air forces combined to destroy the German Seventh Army. Operation Tractable saw First Canadian Army fighting its way towards Falaise, which troops entered on the 18th, while Second British Army advanced on the Canadians' flank and American forces swept around the far right and encircled the bulk of the enemy's forces. The latter thus found themselves in a pocket whose only opening – to the east – was slowly being closed by Canadian forces moving southward and Americans advancing north to meet them. The ever-narrowing gap forced the Germans to move by day as well as by night in a desperate attempt to get their soldiers and equipment out of the pocket before it closed, thus offering the tactical air forces perfect targets of opportunity. Except for Nos 400 and 402 (engaged in reconnaissance and V-1 hunting, respectively), all RCAF fighter squadrons, including the Spitfires, entered the fray without regard to aircraft types or designated roles. From D-Day to the end of July No 416 had left seventy-five vehicles destroyed, smoking, or damaged, but in the first fortnight of August it accounted for 117. Attacks were not only aimed at transport, but at communications in general. Beginning in August, No 403, when on armed reconnaissance, equipped six of twelve Spitfires with bombs to attack road and rail junctions as well as bridges, the other six acting as escorts; but the Germans were not about to allow themselves to be slaughtered, and anti-aircraft artillery was very much in evidence.<sup>92</sup>

On the 13th, No 442 posted the highest (and hence grisliest) score in 83 Group, with sixty vehicles and ten tanks accounted for in thirty-five sorties as pilots flew as low as possible – debris from an exploding truck damaging the wing of one Spitfire. The next day No 126 Wing set an all-time record, to date, with 211 vehicles claimed destroyed, smoking, or damaged, with No 442 again leading with seventy-seven vehicles, five tanks, and six armoured fighting vehicles. On the 15th, some Typhoons began to operate without bombs, relying on their four 20 millimetre cannon to destroy vehicles, thereby eliminating the time spent in bombing-up to increase the number of missions they could carry out in a day. At Broadhurst's orders, following the Luftwaffe's redeployment to airfields around Paris, some squadrons gave up finger-four and fluid-six formations and operated in pairs, cutting down on turn-around time by eliminating the need to form up, and increasing the number of missions a pilot could fly in a day from the usual three or four to as many as six.<sup>93</sup>

The Allies dominated the skies over the Falaise pocket, with collision a far greater hazard than the Luftwaffe. When on the 15th No 414 left Odiham for B-21 and began tactical reconnaissance missions, its pilots having completed their conversion training to Spitfires, it found more and more aircraft operating over an ever-diminishing territory. In mid-month, crews had even more trouble than usual differentiating between friend and foe on the ground and in the air, so higher headquarters decided to allocate zones between the tactical air forces



to allow each formation to familiarize itself with a given area. The American US Ninth Air Force was given the main task of attacking enemy forces within the pocket while Second TAF tried to prevent movement through the gap, attacked convoys making for the Seine crossings, and intercepted supply echelons trying to bring up fuel and ammunition to the beleaguered Seventh Army.<sup>94</sup>

No 441, with 125 (RAF) Wing, recorded that 'the slaughter was at its height when No 441 Squadron entered the arena on the afternoon of 18 August,' as it attacked with 500-lb bombs, 20-millimetre cannon, and machine guns. No 126 Wing declared that 'today was the biggest day for Allied aircraft since "D" Day,' and 'the entire Wing had the best day in its history insofar as enemy transport was concerned,' claiming over seven hundred vehicles destroyed or damaged, while pilots often ran out of ammunition or were low on fuel before running out of targets. Casualties among the Spitfires were light. No 442 had four aircraft hit by Flak but lost no pilots, while No 411 had one pilot bale out. No 401 was the hardest hit that day, losing two pilots missing in fifty-one sorties (six operations) while accounting for 167 vehicles.<sup>95</sup>

No 127 Wing listed the 18th as 'the busiest day in [its] history,' claiming to have destroyed or damaged almost five hundred vehicles in 290 hours of flying time, expending about thirty thousand rounds of 20 millimetre ammunition in the process.<sup>96</sup>

At 18.00 hours all patrols and readiness were cancelled and a concerted effort from the entire Wing was requested to attack transport in the Vimoutiers area. From then onwards until dusk every available aircraft, including the Group Captain's Spitfire V, was put into the air. They took off in two's and flew until they ran out of ammunition. They returned to base, were refuelled and rearmed, and were off again. When operations finished 486 vehicles of one kind or other had been destroyed or damaged, making an average of 2½ vehicles per sortie flown. A number of our aircraft were hit by *Flak* and several crash landed away from base but only one pilot, F/O Leyland of 421 Squadron, went missing.<sup>97</sup>

The Typhoon squadrons had been developed and trained especially for this kind of work, and on the 18th they inflicted severe punishment. All of No 438's fifty-seven sorties were strafing operations, on which it lost two aircraft with their pilots, while No 440's experiences were similar. 'The Squadron was called upon to make an all-out effort strafing the retreating Germans and MT convoys in the Falaise sector. This was a record-breaking day for the Squadron and surpassed the previous record day of one month previous, July 18 [Operation Goodwood]. In all a total of 54 sorties were flown for a total of 52 operational hours.' Like their colleagues on Spitfires, Typhoon pilots often ran out of ammunition before they ran out of targets, though of No 440's seven missions on the 18th the last two uncovered no enemy. 'Everywhere was strewn smoking vehicles and wreckage ... Everyone did their utmost to keep our aircraft up in the air and the co-operation of the groundcrew was magnificent,' while 'one outstanding feature was the fact that not one bomb was

dropped and for the first time Typhoons played the role of fighters to a greater extent than ever before.<sup>98</sup>

The slaughter continued for days, though Second TAF's claim of over three thousand vehicles destroyed on 18 August would not be surpassed.\* On the evening of the 19th the pocket was finally closed when Poles fighting as part of First Canadian Army met with Americans at Chambois, but the bloodletting continued through the 20th, when a final German attempt to break out of the trap failed and more precious tanks, trying to open the pocket from the outside, were destroyed. With weather closing in, the 21st proved to be a bad day for flying, but pilots and ground crew who had been pushing themselves to exhaustion did not complain. 'At the risk of being considered unpatriotic, we record with some personal satisfaction that weather prevented any flying today.'<sup>99</sup>

More than ten thousand German troops died in the Falaise pocket and a further fifty thousand were taken prisoner, while about twenty thousand escaped, fortunate to leave behind an area that was both junkyard and slaughterhouse. Sir Arthur Coningham later reported 'a scene of major destruction and carnage,'<sup>100</sup> while the supreme allied commander, General Dwight D. Eisenhower, rarely given to hyperbole, could not forget what he saw there, two days after the battle was over.

The battlefield at Falaise was unquestionably one of the greatest 'killing grounds' of any of the war areas. Roads, highways, and fields were so choked with destroyed equipment and with dead men and animals that passage through the area was extremely difficult. Forty-eight hours after the closing of the gap I was conducted through it on foot, to encounter scenes that could be described only by Dante. It was literally possible to walk for hundreds of yards at time, stepping on nothing but dead and decaying flesh.<sup>101</sup>

The Allies needed the road network around Falaise to continue their advance, so infantry and armoured units saw for themselves the destructiveness of air power. As the 2nd Argyll and Sutherland Highlanders of Dempsey's Second British Army moved forward, 'The route took the Bn through a road 7 miles long where the most appalling destruction had been caused on enemy transport by the RAF. Dead Germans, dead horses and mangled transport were heaped up on the verges of the road.'<sup>102</sup> If the sights of butchery were enough to suppress appetites, the odour was worse.

The acrid smell of burning and burnt-out vehicles was bad but the stomach was turned by the stench of the dead men and horses – and there were thousands of dead horses.

\* It should be noted that claims of vehicles destroyed, like air victories, were usually greatly exaggerated, not only because of the normal confusion arising from dozens of aircraft operating in the same area but also because many destroyed vehicles still looked sound from the air and would thus be targets for several attacks. Operational Research Sections found only three thousand vehicles of various types in the Falaise Pocket after the battle – the result of ten days' fighting by air and ground forces.

The smell was all-pervading and overpowering. So strong in fact that pilots of light artillery observation aircraft flying over the area reported that the stench affected them even hundreds of feet in the air.

Above the battlefield shimmered a miasma of decay and putrefaction; everything was covered with flies and blue-bottles. In the hot August sun the cattle which had been killed only days before were masses of crawling maggots, and the unburied Germans, swollen to elephantine grossness by the hot sun inflating the gases in the stomach, lay with blackened faces in grotesque positions. Here there was no dignity of death.<sup>103</sup>

In the midst of the carnage, pilots who had been shot down during the fighting attempted to make their way back to friendly lines. One of these was Flight Lieutenant A.F. Halcrow of 411 Squadron. He had just finished strafing a convoy in the early afternoon of 18 August when he committed a classic error, coming around for another run against the trucks. A burst of 20 mm Flak struck his glycol and oil lines, 'the engine about leaped out of its mountings,' and Halcrow baled out. Captured almost immediately following his landing, his captors helped themselves to the food and cigarettes in his escape kit. Halcrow was now in the situation about which pilots often speculated: What would happen if they fell into the hands of enemy troops they had just been strafing? In this case, the Germans behaved correctly. Hauled into the presence of the local commander, he was questioned briefly and then placed with seven other prisoners, mostly Americans. Having surmised that the guards were a mixed lot of Romanians, Greeks, Italians, Poles, and Russians, the Canadian and a few other prisoners tried to talk their way to freedom, but the Germans were not so naïve as to leave prisoners in the hands of unreliable troops, and there was always a 'pure' German nearby to supervise the guards.

After spending the night in a barn, 'along with seven cows,' the prisoners were loaded into a truck, but the convoy came under severe shelling, forcing guards and prisoners alike to scatter for shelter. Halcrow and an American found themselves in a German dressing station, which was dive-bombed by Republic Thunderbolts of the American tactical air force, and in the ensuing disorganization the Canadian, along with a German stretcher-bearer, decided to make their way to British lines, which they did with the help of a 'large' Red Cross flag and directions from the local parish priest. Three days after being shot down, the pilot joined the ranks of the tiny minority who managed to avoid a prisoner-of-war camp after baling-out over enemy territory.<sup>104</sup>

In the larger scheme of things, the American break-out spread to other parts of the front in late August and Allied forces soon overran France and Belgium. The front line crept further away from bases in the British Isles, forcing those night-fighter squadrons guarding the troops from the air to move to the Continent to hunt bombers operating almost exclusively after dark. Already scheduled to join Second TAF, No 409 began to operate from Carpiquet aerodrome (near Caen) on 24 August, covering the advance into Belgium.<sup>105</sup> No 410 moved to Glissy, near Amiens, on 22 September, and by the end of the month its aircrew had flown a series of defensive missions over Belgium and Holland,

penetrating as far as Aachen in Germany. Both squadrons found their sorties to be generally quiet, although several crews reported – with considerable interest and some awe – the spectacular night-time launchings of V-2 rockets (see chapter 10).<sup>106</sup>

The main effort, of course, still took place during the day, and near the end of August the fighter-reconnaissance squadrons were introduced to innovative operational procedures as pilots assumed short-term duties with the army in the front line. On the 20th one of them was attached to an armoured reconnaissance regiment, and two days later, from a scout car near the front, he directed 430 Squadron on three tactical reconnaissance missions, sending pilots to check out areas along the army's axis of advance, which took it through Amiens and Arras, while the Canadians cleared the Channel ports on the left and the Americans (with French divisions) liberated Paris on the right. No 414 began similar operations, by now labelled contact reconnaissance patrols, in mid-September, and they proved most useful in a mobile battle or during a pursuit, when Army Headquarters was not up-to-the-minute on events at the front and hence incapable of properly briefing reconnaissance pilots. Furthermore, the system allowed information to reach – quickly – those units that most needed it, namely, those leading the advance.<sup>107</sup>

For RCAF fighter pilots, the Normandy campaign ended when the front line moved to the Seine, outside their operational range. As they prepared to move on and ready themselves for the next battle it was time to take stock – which, for Spitfire pilots, meant counting up hours flown, aircraft shot down, and vehicles shot up. All nine squadrons with No 83 Group were satisfied with their performance, with the three least successful each claiming nineteen enemy aircraft destroyed, and the three most successful claiming over thirty (401 claimed forty-three and a half), for a grand total of 239. In all, fifty-eight RCAF Spitfire pilots were killed or captured in the course of the campaign, with twenty-one brought down by Flak, seventeen shot down by enemy aircraft, twelve crashing due to mechanical failure or similar problems, and eight lost to undetermined causes.<sup>108</sup>

The three RCAF Typhoon squadrons lost twenty-five pilots, seven from each of Nos 438 and 439, and eleven from No 440, while casualties among the reconnaissance squadrons were less evenly divided. No 400, concentrating on taking high-altitude photographs, lost no pilots on operations, but Nos 414 and 430, flying at low altitudes to get a close look at the enemy and sometimes strafe his transport, lost four and six, respectively.<sup>109</sup>

Air power had proven crucial in the Normandy campaign, as 21st Army Group was quick to acknowledge. German commanders could well have echoed that view. In a postwar interrogation, Göring unwittingly admitted his own weaknesses as a commander when he suggested that 'the Allies owe the success of the invasion to their Air Forces. They prepared the invasion, they made it possible, and they carried it through,' while without such air power, Göring claimed, it would have been possible to bring up German reinforcements and make full use of armoured units. General Jodl, Hitler's chief of staff, agreed: 'I am of the opinion that had we been able to oppose the Allies

in the air in equal strength the Anglo-American invasion would have been repulsed. Success was due solely to unquestioned Allied air supremacy.<sup>110</sup>

Yet the story of Second TAF during the battle for France was not one of perfect success. Although the Spitfire IX was one of the best close-in fighters of its time, like all Spitfire variants it had evolved from a design specification dating from the mid-1930s and aimed at securing British air space from attack. As a result, its maximum practical range of 430 miles, which translated into a radius of action of about 170, rendered it useless after the break-out. Montgomery's 21st Army Group had been forced to rely on American aircraft 'at a time when air support was most needed to support the advance and to take advantage of the favourable targets which a forced retreat presents to air attack.'<sup>111</sup>

War is a complicated business, and though the British and Americans (especially the latter) commanded immense resources, there was nothing to guarantee this materiel would be well applied in every case. Neither of the two major national air forces involved in the Normandy campaign had seen fit to equip itself with long-range fighters until the autumn of 1943. Thus in the summer of 1944, even as air forces were learning more about the tricky business of supporting ground troops, a task which, ideally, required a capability for prolonged loitering over the battlefield, there were not enough Mustangs to go around. The Spitfire could not be replaced, and RCAF pilots would have to do their best with the tools available.

## Final Battles, 1944-5

The summer of 1944 saw Allied forces break out of their crowded beachhead in Normandy and overrun large areas of France and Belgium, their advances closely followed and supported by the tactical air forces.

One evening following a hurried departure by German garrison troops, we landed our Spitfires on Brussels main aerodrome at Evère. The British troops had not paused here during their hot pursuit of fleeing Germans. Consequently, when we airmen entered Brussels main square at dusk, on September 6th, we were soon mobbed by thousands of cheering civilians. I have never before or since heard such spontaneous roars of welcome. Crowded sidewalk restaurants were serving heaping plates of rabbit and venison stews, and every table was adorned with long loaves of fresh, French bread. Huge jugs of red wine from seemingly inexhaustible cellars were replenished at every table by laughing, drinking, shouting waiters. Street musicians entertained the passing parade of singing, well-dressed civilians, surging along the avenues to the next square. It was Mardi-Gras and every other fete that had been suppressed for five years. Groups of roistering citizens, would capture a prize pilot for their celebrations and carry him with them as they progressed from one bistro to the next. The beaming landlords proclaimed free drinks for their regular patrons and for the conquering heroes. Late in the night I was carried by my jubilant liberators to one of the best rooms in the central Majestic Hotel. Mercifully sleep terminated the lengthy patriotic speeches of my benefactors. Before dawn I was awakened by a waiter with a huge pot of coffee and a large omelette made with fresh mushrooms. The thoughtful, kind celebrants had re-assembled all the missing pilots at my hotel, and a convoy drove us back to Evère. Hang-overs were forgotten or disregarded, overwhelmed by the enormity of that previous night's welcome.<sup>1</sup>

For fighter units it was time to relocate forward, closer to the new front, and 'the ground crew enjoyed themselves immensely during these moves.'

They have been seeing a great deal of France and its inhabitants. The road has led through many blasted towns and villages and it seemed rather strange that the people of these towns will still smile and wave at us even though their homes have been demolished. We have also seen the results of our strafing of enemy transport, German



MT vehicles by the score litter the fields along the highway. Knocked out enemy tanks and armoured vehicles as well as some of our own were also seen.<sup>2</sup>

The obvious success of the Normandy campaign was, to some extent, deceptive, however, having done little to sort out all the difficulties of army/air force cooperation. The soldiers were particularly impressed by close support work – and the closer the better – while Air Marshal Sir Arthur Coningham, Second TAF's commander, perceived more important tasks for his pilots. 'It is doubtful,' he observed after the war, 'whether the Army appreciate that the best application of our tactical bombing effort is often well ahead of the advance,' on interdiction missions. Moreover, in spite of doctrine stressing unity of effort in the air, 'boundaries between army formations were applied to supporting squadrons and groups as well, with the consequence that German forces unwittingly crossing these imaginary lines were suddenly immune to air attack.'<sup>3</sup>

Experience gained in the desert campaigns of North Africa and through the experiments and exercises of Army Co-operation Command had demonstrated the need for close liaison between ground and air forces. Air conferences, or army/air staff meetings, were supposed to convene every day (though in reality it was every other day), and on these occasions staff officers in blue and khaki discussed intelligence reports, the army's air requirements, priorities, airfields, and future moves. Each meeting was, in theory, followed by directives from the group headquarters to its constituent formations stating in general terms what air operations were to be carried out next day, while, if further resources were required, the necessary requests were submitted to Second TAF and 21st Army Group.<sup>4</sup> Calls for quick, or 'impromptu,' support would, of course, be dealt with on their merits as they arose.

Doctrine and theory quickly broke down under the pressure of operations, however.

Throughout the campaign considerable difficulties were experienced between Army HQ and Tac Group HQ staffs over the manner in which the available air resources were being employed, and particularly in regard to the engagement of targets nominated by the Army. It was considered that these difficulties were due to personalities and consequently were at their worst when the HQs were separated.

An analysis of the periods when relationships were at their best and when the results achieved reached the highest levels, shows that the variations were closely related to the personality aspect. When there was a clash of personalities, both staffs were affected at all levels and the RAF attitude tended to become one in which an Army requirement was regarded with suspicion, and as something to be treated as an opportunity for destructive criticism rather than a matter of joint interest and importance.

Under the circumstances requirements for air action other than those of direct military interest, were frequently used as a reason for refusing Army requests, although the facts did not always support the contention.

These remarks refer to the higher level of Army/Tac Gp HQ and are not applicable to the lower levels of GCC, Wings, and Squadrons, or to the pilots themselves.

In all these cases the whole approach to the support of the Army was different and was marked by enthusiasm and a readiness to do the job which was wholly admirable.

It was felt that the origin of these difficulties had its root in Air Force anxiety to preserve the autonomy and separate entity of their service, an anxiety emphasised in their view by the fact that the main function of the Tactical Air Force is to provide air support for the Army. In fact, the principle regarded as being at stake was never questioned by the Army at any time whatsoever, and any fears which may have been entertained in Air Force circles cannot be considered as having the smallest foundation.<sup>5</sup>

As Major General C.C. Mann (once chief staff officer of First Canadian Army) explained in 1946, everyone had ignored the 'human factors,' and for that reason 'this conception – that war-like operations can be conducted with maximum efficiency under a system of Joint Command at this level [army/group] – was 'unsound.'<sup>6</sup>

If staff officers at the army/group level had trouble getting along, it may have been a result of the poor example being set by their superiors. After four months of operating on the Continent, Coningham and Montgomery continued to bicker over the use of air resources. Taking up his cause with Harold Balfour, the undersecretary of state for air, Coningham hoped 'that Balfour now realised why he was so averse to bombing Allied villages just because the Army thought that as road centres their destruction would hinder the enemy; a view that was making him unpopular "in high places."<sup>7</sup>

Even though the commander of 21st Army Group and his counterpart at Second TAF were responsible for planning and executing all ground and air operations in the British area, the former 'spent most of his time at a forward Tactical Headquarters whereas Coningham remained at his Main Headquarters in Brussels ... However, what Coningham called the "deliberate disassociation" of Montgomery from his Main Headquarters caused problems. "He and I used to meet at his Tac HQ at intervals to discuss and to decide upon our joint plan for the conduct of the battle by the Army and Air Forces in the British sector," but the absence of Montgomery from daily meetings meant that the "responsible Soldier" was not in touch with the "responsible Airman." This method of doing business, thought Coningham, was wrong.'<sup>8</sup>

Personality clashes within the high command were certainly not smoothed over by Operation Market Garden, an attempt to seize a corridor to the Rhine and a bridgehead over the river which the Allies could use to outflank the Siegfried Line and end the war by Christmas. In planning it, the lessons of North Africa – especially the need for unity of command in the air – had been jettisoned. Second TAF was not allowed to enter the area while troops and supplies were being dropped and was banned from attacking targets of opportunity on the ground unless the enemy fired first – no doubt a precaution to avoid firing on friendly troops but, at the same time, a notable loss of firepower. As a result the only Canadian fighter unit to be directly involved in the Arnhem operation was No 402, which as an ADGB squadron escorted some of the air-transport missions.<sup>9</sup> Complications did not

end there, however, for the entire operation was controlled from London by US General Lewis H. Brereton's First Allied Airborne Army headquarters, so that the airmen of No 83 Group had no means of contacting the soldiers except through the latter's commanders in England. Thus the inevitable problems associated with air/ground operations were vastly compounded by the Allies' own organization.

Market Garden, though ultimately unsuccessful, posed a serious threat to the German position on the Western Front and the enemy reacted accordingly. In the words of No 83 Group's ungrammatical diarist, 'in this latter half of the month, the German Air Forces, which had by now come to rest in German bases and which had time to collect itself after its rout from France, re-appeared and threw themselves in great strength into opposing the push into Holland.' The first intimation of this came on 25 September, while the British were admitting failure in the Arnhem sector and ordering the battered remnants of the 1st Airborne Division to withdraw. No 441 Squadron was patrolling the Nijmegen area when it encountered twenty or more Me 109 fighter-bombers, ostensibly on their way to destroy the bridges upon which army units, thrusting towards Arnhem, relied for resupply. The Germans jettisoned their bombs, and another force of Me 109s, acting as high cover, then pounced; by the time the turbulent *mêlée* ended, No 441 claimed three enemy machines destroyed while losing two pilots of its own, both of whom were killed. No 416's experiences were almost identical. 'At last the Hun is starting to come up and fight and the boys chalked up three 190s to their credit, however all was not milk and honey because we lost F/L Errol H. Treleven and F/L "Dyke" England got pretty badly shot up, and was taken to the hospital.' In all, RCAF squadrons claimed thirteen victories while losing three pilots killed.<sup>10</sup>

Though postwar commentaries have claimed that, 'by early September the air situation in the west could scarcely have deteriorated further, and to all intents and purposes the Luftwaffe was a spent and exhausted force with seemingly little future prospect of recovery,' the performance of German pilots over the Arnhem corridor 'was the first sign of the very remarkable recovery which was to make itself obvious over the next few months.' The 27th was a record day as No 83 Group's wings claimed forty-six enemy aircraft shot down, two probables, and twenty damaged in the Luftwaffe's continuing and determined effort against the bridges at Eindhoven and Nijmegen. Among the RCAF formations, No 126 Wing claimed twenty-two destroyed and ten damaged. Of its four squadrons, No 412 had the best reason to be satisfied, as 'today was the biggest scoring day in the squadron's history with 14 enemy aircraft destroyed and 7 damaged.'<sup>11</sup> Even the Typhoons had opportunities to fight their enemy in the air, an excellent boost to morale after months of being shot at, often accurately, by multi-barrelled anti-aircraft artillery. No 438 was carrying out its usual rail interdiction missions when four of its aircraft were jumped by about twenty Me 109s and FW 190s; and in the ensuing dogfight Flight Lieutenant H.G. Upham shot one of them down for the squadron's first kill of the war.<sup>12</sup>

All in all, No 83 Group lost fifty-nine pilots in the month of September, or one for every 155 sorties flown, a casualty rate it could well bear indefinitely, while the Typhoon pilots, who had seen so many of their friends fall to enemy Flak during the Normandy campaign, lost only two or three aircraft per squadron in the course of the month.<sup>13</sup>

Calm followed the storm, and units took advantage of a diminished intensity in operations after Market Garden to take turns on two-week refresher training at one of the many armament practice camps in England, relearning both air-to-air fighting and bombing skills, though some pilots 'felt the expenditure of ordnance was a total waste of time and money. Hell!, we had been doing nothing else for months and we were considered pretty good.' In fact, the opposite was probably true. Postwar analysis indicated that to obtain a hit on a pinpoint target required, statistically, an average of 463 bombs; at armament practice camps, however, where there was no Flak, 'only' 110 bombs were needed to achieve the same results. The wings also carried out training at their own airfields – a high priority given the number of replacement pilots coming on strength every month – and in 127 Wing all incoming pilots had to complete a five-hour operational training course before flying any missions. Interestingly, this rule applied to second-tour men as well as pilots fresh from Operational Training Units, an indication of how rapidly tactics and techniques were changing.<sup>14</sup>

With few German aircraft operating during daylight hours and the army's need to clear the Scheldt estuary and open the port of Antwerp before it could advance into Germany, both defensive patrols and close support receded into the operational background. Second TAF concentrated on bombing and armed reconnaissance missions usually aimed at road, rail, and canal traffic, and railway interdiction increased in sophistication, bomb-carrying fighters now endeavouring to make three cuts on each line so that repair crews could not work on all of them simultaneously. Normally, after-action reports were tinged with ambiguity, but sometimes results could be spectacular, as in No 438's 16 September attack in which it claimed the utter destruction of an ammunition train. If sufficient fuel remained after the main task had been carried out, the flight was then free to seek out and strafe secondary targets, usually along roads or railways,<sup>15</sup> though strafing and bombing required different tactics. With the latter, 'one dives directly on the target at a 50° angle or more, releases the [bombs] and hopes that good ol' Isaac Newton will carry them the rest of the way, in the proper manner, while one politely and post haste got the hell away. With guns, it's different: one dives about half a mile from the target, levels out on the deck, centers the ol' needle and ball, steadies the luminous bead on the target and blasts away. One is then pretty sure of creating quite a mess at the receiving end.'<sup>16</sup>

For the three RCAF reconnaissance squadrons, operations were less varied, and their pace was set more by the vagaries of weather than the activities of friendly or enemy forces. Thus in October, even though Anglo-Canadian armies were no longer engaged in a major offensive, 5 (RCAF) Mobile Field Photographic Section (one of two in 83 Group) processed some 469,000

photographs; in its busiest twenty-four hours it produced 26,400, while on only four days that month did Second Army request fewer than 10,000 prints. For those taking the pictures the job was exacting, especially for No 400 Squadron, whose missions – many against targets in Germany – were true tests of endurance. On 4 September one pilot landed after dark with only fifteen gallons of fuel in his tanks – enough for fifty miles – after more than four hours in the cramped cockpit of his Spitfire.<sup>17</sup>

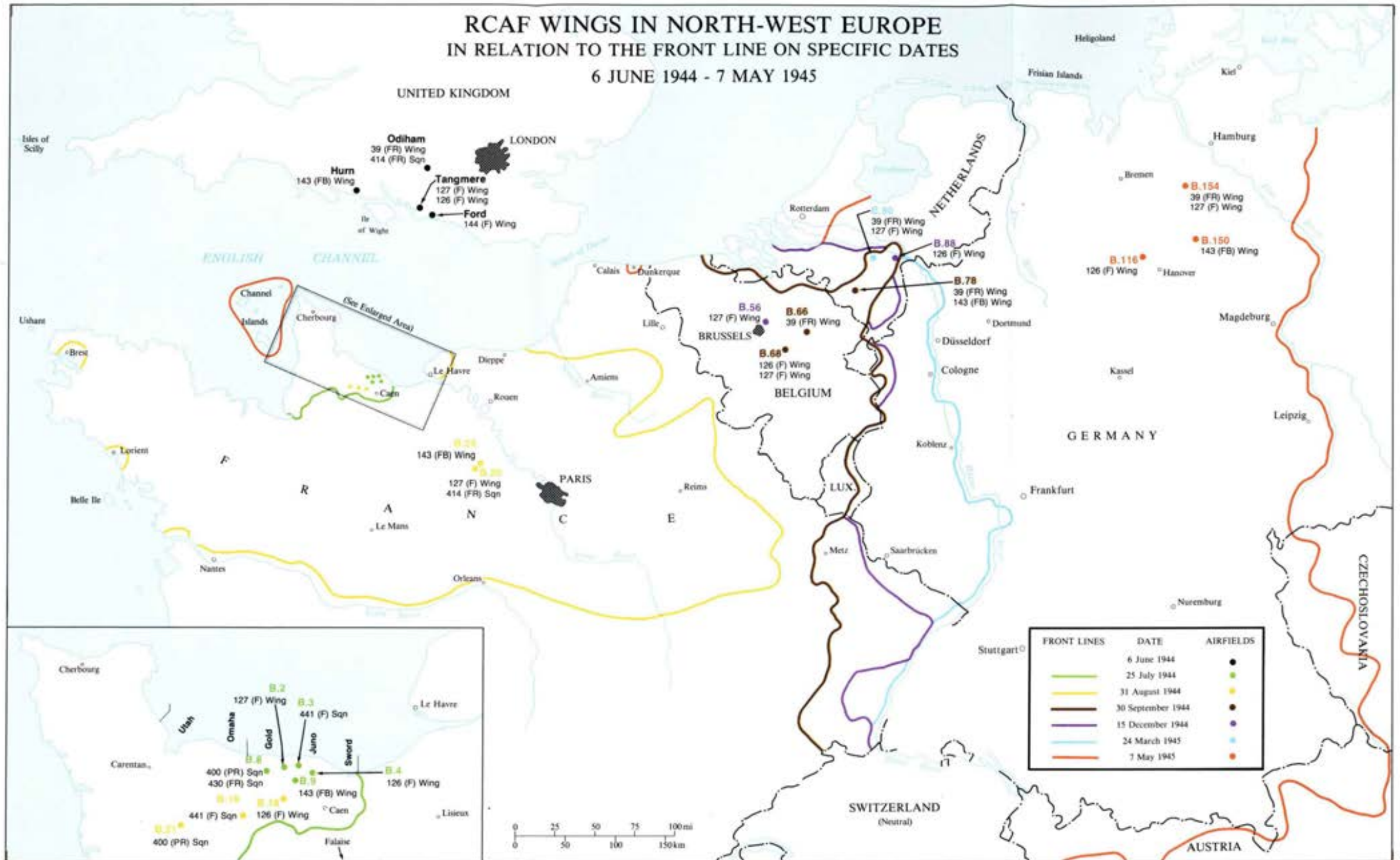
Because of where they were now flying, encounters with P-51s (American Mustangs) escorting B-17 Fortresses would become a common occurrence for daylight reconnaissance operations, and not all American pilots were grade A in aircraft recognition. On 5 October, 400 Squadron's 'F/L P.G. Wigle was bounced by 4 American Mustangs Mk. III at 17000' near Deurne. Two Mustangs fired at 600 yards range. Pilot evaded first two a/c which fired and noted battle letters of other two aircraft which were PZ-W and PZ-V. F/L G.S. Brown was continually bounced by Mustangs escorting Bombers in Almelo Area.'<sup>18</sup>

All pilots faced a variety of hazards, hence the Allied policy of giving aircrew a break from the dangers of operations. RCAF Spitfire squadrons rotated pilots after each had flown two hundred hours, but Typhoon pilots, carrying out a higher percentage of dangerous low-flying missions in more temperamental aircraft, were posted to instructional or other duties after a hundred sorties. Squadron Leader H.H. Norsworthy, DFC, for example, completed his tour after 102 hours in the air. In order to minimize the stress that inevitably accompanied the end of their tours, pilots were commonly 'screened' before reaching the hundred-sortie mark. In No 438 a pilot could be taken off operations anytime after his ninetieth,<sup>19</sup> with Flying Officer I.W. Smith, the last of No 439's originals (who had been with the unit when it was No 123 in Canada) being screened out after ninety-five. 'He has had a rough time, and met with three accidents during his tour. The first when he ran into a bomb dropped by his Wing Leader on landing; the second on landing from operations with a flat tire that almost caused his Typhie to overturn; the third was the worst, he was making a forced landing on returning from operations and his aircraft slid into a forest knocking off both wings.'<sup>20</sup>

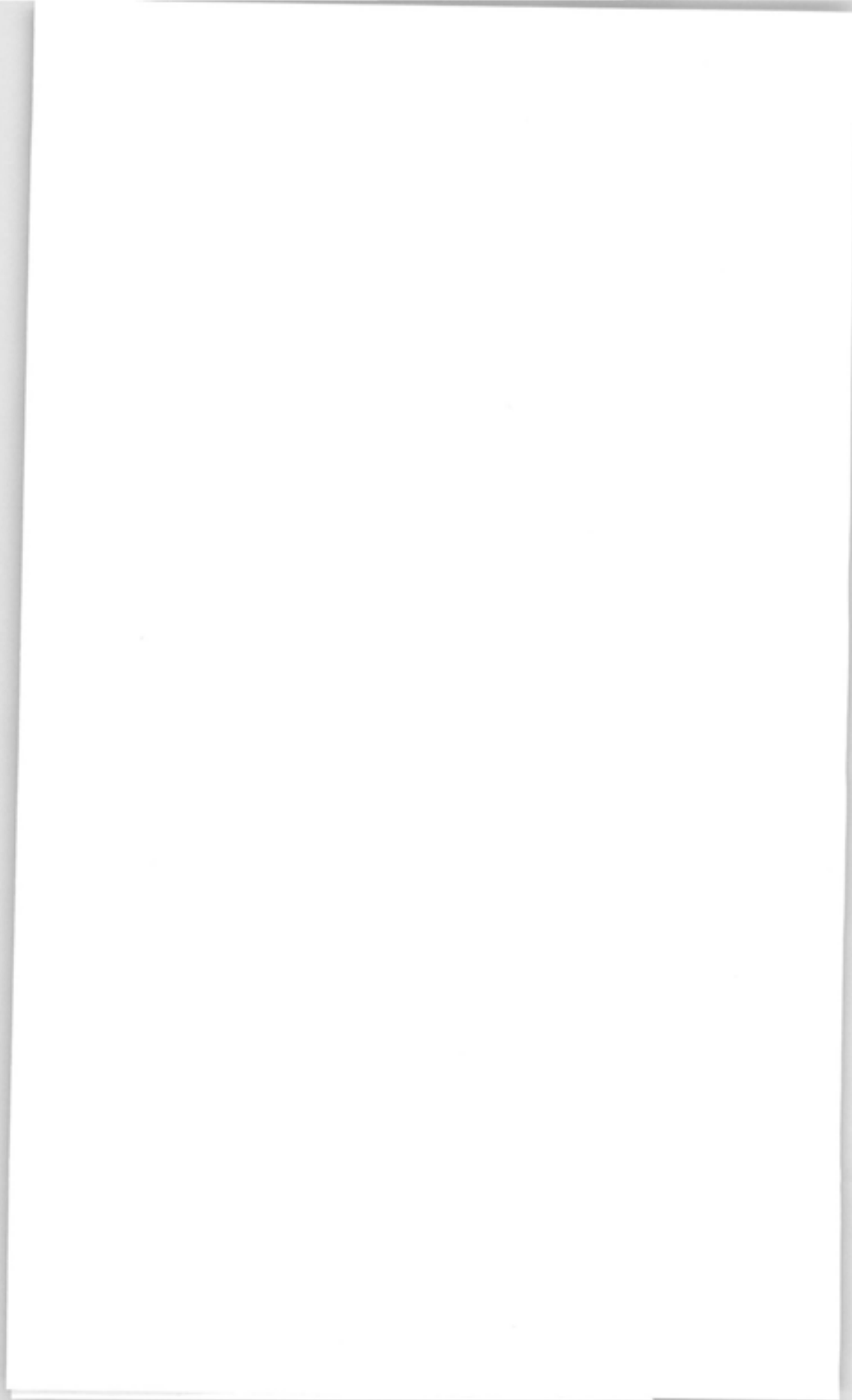
The policy of replacing pilots before they self-destructed or became a burden on their comrades led to a heavy turnover within units. Five new pilots arrived on No 401 Squadron at the end of September 1944, when 'many of the original D-Day Squadron are already back in England or on the last few hours of their tour.' Similarly, in mid-December, No 411 reported that none of its airmen had seen action with the unit before its move to France in June. On occasion, however, the number of available pilots slowed to a trickle. 'Replacements have been badly needed but we have been advised that at present the supply at 83 G[roup] S[upport] U[nit] is exhausted,' reported 440 Squadron in late November, and the problem was still acute a month later. 'Considerable difficulty has been experienced in obtaining replacements. 83 GSU at times have none available for posting and during heavy operational periods, a great strain is thrown on the remaining pilots.'<sup>21</sup> (The Germans faced far worse problems, one of which was the lack of any system of operational tours. Their



# RCAF WINGS IN NORTH-WEST EUROPE IN RELATION TO THE FRONT LINE ON SPECIFIC DATES 6 JUNE 1944 - 7 MAY 1945







pilots flew until they were killed or permanently disabled, or carried over the edge of mental breakdown.)

Leadership was important at such times, and some squadron commanders stayed on longer than the two hundred hours or hundred sorties dictated by policy, Squadron Leader W.G. Dodd, DFC, accumulating three hundred hours (in eighteen months) on No 402 before he departed.<sup>22</sup> When a CO did leave, however, it often meant promotions for some of those remaining. 'Late in the day word was received that the OC [of 411 Squadron], Squadron leader R.K. Hayward's tour was finished. F/L E.G. Lapp ... was appointed to command the Squadron in his place and was promoted to the rank of Squadron Leader. F/O G.F. Mercer ... was appointed as Commander of "B" Flight and was promoted to Flight Lieutenant. The promotion of these officers was well received by all. S/Ldr Hayward DFC brought the Squadron through a most difficult period due to an almost complete turnover of pilots. The state of morale is very high which augurs for continued good results in future.'<sup>23</sup>

For those who were screened the separation could be bitter-sweet, as Bill Olmstead remembered, decades after giving up command of No 442 Squadron.

Experience had proven that it was difficult to obtain a posting to an operational squadron. Now I was to learn that it was also difficult to leave. Records had to be completed, which would take a week or so. All my flying clothes had to be returned to stores with explanations of why I had so few remaining of the many signed for over the years. 'Lost due to enemy action' satisfied the stores officer as he signed off my equipment, including 'Pistol, revolver,' 'Jacket, Irvine' and 'Mae West.' The finality of the procedure seemed prophetic in a way, for I realized that I was through with operational flying forever, that an important stage in my life was complete ...

My last few days of waiting seemed interminable. It was difficult to accept that I no longer had a position of command, with duties to perform that required concentration and action. By December 22 I had received all of my clearance documents, said final goodbyes, and trudged out to the waiting Anson aircraft for the trip to England. Within minutes the lumbering Anson circled the 'drome and then set course due west for the three-and-a-half-hour flight to Tangmere. Much further west lay Canada and home, but strangely that knowledge did not prove very comforting. I knew that I was leaving a way of life that I would never know again, the struggle for survival that few would understand except those who had lived it, and it was tearing me apart.<sup>24</sup>

The need to administer such changes meant that, regardless of what happened at the front, the paper war continued unabated, oblivious to any so-called quiet period in the campaign. An air force built on the concept of permanent bases and entrenched administrations at every level found it difficult, at the higher levels, where such circumstances still prevailed, to understand the problems that beset the administrative echelons of the Tactical Air Force. A squadron's administrative burden was sufficient to cloud the distinction between the important and the mundane and at times administrators' frustrations were reflected in Operations Record Books as they were asked to carry out near-impossible tasks.

Why are we continually hounded for routine returns when mail to the UK takes up to ten days to arrive? The desk division should also take into account that our working conditions are far from the best and that also we move around a great deal and this makes it very difficult to time our returns right. Trying to run an orderly room out of a couple of tin boxes isn't the easiest job in the world.<sup>25</sup>

The frequent moves posed other challenges: many maps that squadron headquarters held were never issued, for example, but there was, initially, no procedure for disposing of them and storing the surplus became something of a burden. It was not until the end of December, six months into the campaign, that procedures were inaugurated by which such useless materials could be disposed of.<sup>26</sup>

Administrative challenges were numerous, arising from all aspects of operations – including obvious material needs. At times just trying to keep a squadron supplied for routine flying was a logistical nightmare, and the complaint that 'we haven't got enough gasoline to do local flying' kept unit quartermasters on their toes trying to locate supplies of fuel. Even clothing could pose a problem. In Normandy, to take one case, dusty RAF/RCAF blues had quickly come to resemble the blue-gray of the Wehrmacht. The simple solution was to have all personnel wear the army's khaki dress, but as late as November some had not made the switch, and headquarters at No 83 Group thus felt the need to order all aircrew to wear khaki when on flying operations.<sup>27</sup>

Lack of, or delayed, mail is a universal complaint among service people, and the wartime RCAF was no exception, though there were occasions to take advantage of misdirected missives. 'Life in the Squadron is pretty much the same, except for the fact that mail and parcels arrived some of which belong (or did belong) to pilots whose tour had expired and, as everybody claims, willed their parcels to the active pilots – so now everybody has that satisfied feeling of eating someone else's food and wearing other people's clothes – which are clean.'<sup>28</sup>

Discipline was another matter to be addressed, though most of the time what few disciplinary problems there were could be dealt with summarily, such as the two pilots in No 421 who were given orderly room duty, confined to barracks, and grounded for 'breakage after a small party.'<sup>29</sup> At other times stronger measures had to be taken.

An unfortunate incident occurred in the Mess last night when F/Lt. F.X.J. Regan ... having had a few drinks took it upon himself to criticize vehemently the morale of the Squadron and the efficiency of its pilots. This has happened before and F/Lt Regan had been warned, however, last night was the last straw and the Wing CO is posting him today. F/Lt Regan is our only second tour pilot and a good one – but we cannot afford to have men of his temperament wrecking the morale of the Unit.<sup>30</sup>

The squadron concerned – No 438 – had just lost its newly-promoted Commanding officer, Squadron Leader P. Wilson, who had been killed in action on New Year's Day, 1945, after only one day in command. For the moment, the

squadron was without a CO and, when he did arrive, Squadron Leader J.E. Hogg, DFC, would be killed after a tenure of only two months. It is, perhaps, worth noting that the squadron diarist made no attempt to refute Regan's allegations – indeed, the ORB for the next day observes that a party held at the 'Officer's Club' was 'a huge success' and 'the "get together" afterwards did a lot towards improving the Squadron spirit.'

The post-Market Garden lull allowed a reorganization within the RAF, in which Nos 402 and 441 replaced each other in No 83 Group and Fighter Command, respectively. Accordingly No 441 found itself escorting bombers flying daylight missions from the United Kingdom, while No 402 engaged in potentially more exciting fighter sweeps and armed reconnaissance sorties (without, however, a concomitant rise in its loss rate), its diarist noting that 'the new operational status of the Squadron has much increased the keenness of the pilots.' The most important change was not in the nature of operations but in living conditions, with No 441 gleefully recording that 'the squadron personnel are getting settled into a life of luxury on a permanent station [Hawkinge, Kent] again,' while No 402 stoically related that 'the change to living under field conditions [at Grave, in the Netherlands, with 125 (RAF) Wing] was made without too much difficulty – everyone buckled down and made the best of it.'<sup>31</sup>

That testimony is further evidence that, though pilots and groundcrew were willing to do their duty and preferred to be in the thick of things, rather than back in England, they were not anxious to live uncomfortably while doing it. Units invariably did their best to alter their environment. No 440, for example, went to some trouble in October installing a wooden floor, wooden doorway, and stove in its dispersal tent. 'The dispersal is now very comfortable and is being visited by pilots of other Squadrons in order to get ideas for their own.' All the items of a normal life had to be attended to, No 403 bragging that 'the squadron is now the possessor of four German cars three of which were brought back from Gladbach yesterday, and more furniture for the dispersal and billets.' In other matters, however, and particularly food, a distant and seemingly sadistic administration was in charge, and one diarist noted that he 'never knew that there was so much corned beef in the world. It's all we get three meals a day.'<sup>32</sup>

Nor were No 83 Group pilots and groundcrew targets for V-2 rockets, which on 8 September added yet another challenge to the fighter-bombers' repertoire when the first of over five hundred of them exploded on London.<sup>33</sup> Like the V-1 flying-bomb, the V-2 carried a one-ton warhead, but because it was a supersonic missile, falling to earth from the stratosphere, it gave no warning of its arrival and was entirely immune to direct attack. It was also a totally indiscriminate weapon, not even capable of hitting London with any consistency. Unlike the V-1, it was 'fired from a base only a few yards square, which could be set up rapidly on any small open space,' wrote Coningham.

Furthermore, the enemy appreciated our unwillingness to carry out attacks against sites which were concealed in built-up areas [of Holland], which would entail casualties to the friendly inhabitants, and he deliberately made more and more use of such sites to deter our counter-measures from the air ... The best method available to me for dealing with these harassing weapons was to try and reduce their rate of fire by disrupting the communications to the sites, while the strategic air forces played their part in destroying the manufacture and storage installations further back.<sup>34</sup>

A few weeks after the first V-2 – code-named Big Ben – landed in London, however, pilots began picking up signs – ‘contrails,’ or condensation trails from the heat of the rocket exhaust – that might help locate launch areas. Some of the first reports came from pilots in 400 Squadron, which on one occasion spotted no fewer than five contrails exiting from the same area. Other units began to report sightings soon thereafter, while at night No 418 added its eyes to the search for Big Bens, looking for the flame of rocket exhausts.<sup>35</sup> As locations were established, possibilities arose of interdicting the supply of rockets to the launch areas.

Whether to isolate V-2 sites or as part of the general offensive against the German communications system, railways always figured prominently on the list of priorities for fighter-bomber operations. While heavy bombers attacked rail centres and marshalling yards and certain major bridges, mediums attacked other bridges and railheads, and fighter-bombers concentrated on rail-cutting and patrolling railway lines to attack rolling stock.<sup>36</sup> No 438 struck hard on 2 October.

Today was the best day we have had at Eindhoven. The sun shone brightly all day and visibility was unlimited. Results also were almost unlimited. Four dive bombing shows were done, three of them with 500 lb bombs, the other using 1,000 lb bombs. The score for the three using 500 lb bombs plus strafing was 6 trains attacked, with 5 of them damaged, the sixth, an ammunition and petrol train of 30 cars believed totally destroyed. It was very spectacular with the smoke rising to a thousand feet. Four tracks were cut as well and a barracks and store room set on fire. On the 1,000 lb raid the Squadron, in conjunction with 440 Squadron attacked the Marshalling Yards at Geldern. All bombs fell on target and results were excellent with all ten tracks cut, double tracks into the yards cut, 20 goods trucks destroyed and the station and town damaged by strafing.<sup>37</sup>

Attacks with bomb and bullet against railways and locomotives were now routine, but some operations – against special targets – required much more planning and preparation. Lock gates on Germany's Dortmund-Ems Canal (which both 143 and 124 wings were to attack on 29 October) were just such an objective, described in 438's diary as ‘probably the most important target we have had for ages.’ The operation, which aimed at lowering water levels in a section of the canal and hence impeding barge traffic, was a complex affair; while three squadrons (including Nos 438 and 440) prepared to dive-bomb the lock gates with their ‘Bombphoons,’ a squadron equipped with

rocket-firing Typhoons would try to suppress the Flak positions that guarded the locks, a process requiring intimate coordination and precise timing. 'Attack made according to plan,' reported No 438's diarist, 'but lock gates up [ie, open]. Wing dropped 32 x 1000 lb bombs at target point. ... Lock machinery believed surely out of commission.'<sup>38</sup>

More and more, Spitfires also played a role in the offensive against communications, and in the last days of September No 126 Wing replaced its Spitfire IXBs with IXEs, which carried more powerful armament – two .50-calibre machine guns instead of the four .303s that supplemented the two 20 millimetre cannon – and wing racks for two extra 250-lb bombs. A thousand pounds of ordnance (a 500-lb bomb under the fuselage and a 250-lb bomb under each wing) was a heavy burden for a Spitfire, and when, on 18 October, No 412 completed its first sorties with such loads, four aircraft were found to have 'wrinkled' wings on their return. No 442 carried similar bomb loads the following day, however, and Spitfires would continue to haul thousand-pound burdens in spite of possible structural stress; replacement wings were easily obtained. With new aircraft or old, Spitfire squadrons took to their rail-cutting tasks with gusto, and No 442 spoke for many of them: 'After nearly a week of no operational sorties, the Wing started off hammer-and-tongs on its rail interdiction program,' though, admittedly, 'not having bombed in three months the pilots were [either] rusty or completely inexperienced.'<sup>39</sup>

In carrying out such missions little was seen of the Luftwaffe's conventional aircraft, though its phenomenally fast jet fighters were appearing more frequently and 'the miserable tale that the enemy aircraft pulled away became all too frequent.' One pilot in No 441 saw his bullets strike home, but 'no appreciable difference in speed was observed,' and a colleague in No 442 could do no more than damage one a few days later. On 5 October, however, No 401 scored a confirmed kill in air-to-air fighting against a jet when five pilots ganged up on an Me 262.<sup>40</sup>

Conditioned by years of searching empty skies, I became aware of a moving speck ahead and below my flight path. It was approaching rapidly and as I radioed this information to my comrades, the wary bandit half rolled into a vertical dive. A similar manoeuvre and my Spit was screaming for the deck about 800 yards behind the unrecognizable aircraft. A glance at the airspeed indicator confirmed that I had exceeded the maximum safe flying speeds for Spitfires. Although the flight controls stiffened up alarmingly, I pursued my prey whose German markings were now visible. When it appeared that the target and I would become two smoking craters in the blurred countryside, the invader commenced his pull-out. It became evident that I must pull-out of the dive more sharply to get within firing range. I 'blackened-out' as the excessive gravity forces buffeted my aircraft. As vision returned my aircraft gave a sudden lurch. Ahead the strange twin engined fighter filled my gunsight. Soon cannon strikes were seen in the right engine which immediately streaked dense white smoke. A barely controllable skid in my aircraft eased as I decelerated rapidly. A horizontal distance of some 100 yards separated our two aircraft when I glimpsed another Spitfire 200 yards astern pouring cannon fire into the crippled Hun. In rapid succession three



other Spits made high speed passes, all registering strikes on the now flame streaked fighter. As the last Spitfire began its attack the German pilot tumbled out of his cockpit ... At a long hectic debriefing it was recorded that we had shot down the first jet-propelled aircraft by British Forces.<sup>41</sup>

An important task for German jets (and piston-engined aircraft) was the harassment of Allied airfields, which, like Grave, were obviously more susceptible to hit-and-run attacks the closer they were to the front – and to Luftwaffe bases in Germany. Suddenly, groundcrew found themselves in the heat and chaos of battle, though squadron diarists often described such attacks light-heartedly. “‘Jerry’ started to work on us today, dropping anti-personnel bombs around the drome. Several of the boys picked up minor *Flak* wounds as souvenirs, and our Orderly Room looks like a Sieve.’ Casualties and the frequency of such attacks could be worrisome, however; four days later, still at Grave, No 421 Squadron reported that ‘Jerry came over several times today and dropped 25 pound demolition bombs around the dispersal area. Several ground crew types were seriously wounded and one died as a result of his wounds. The lads are all a bit twitchy because the attacks happen very suddenly and with no warning.’ On 12 October ‘we had a visit from the jet jobs again today and they dropped two 250 pound HE bombs and killed five men and wounded many more. He [sic] also wrote off one A/C and severely damaged several others. Later two more were dropped but they missed the drome by quite a margin.’<sup>42</sup>

With Second TAF trying to get its units as close to the front as possible, on a few rare occasions even the German army could pose a threat. On 8 October B-78, at Eindhoven, was put on alert as a small pocket of German troops on the other side of the Wilhelmina Canal threatened the base and the infantry units holding the line of the canal were not sure they could contain them. No 400 Squadron and No 143 Typhoon Wing spent the rest of the day preparing to fight, not in the air as they had been trained, but on the ground; and just before midnight No 400 issued rifles to all its personnel, who made their way to shelters to await further instructions. After four hours they were allowed to return to bed, albeit fully dressed with rifles handy, and it was later revealed that enemy patrols had been seen one to two thousand yards from the officers’ quarters.<sup>43</sup>

The Typhoon wing’s experiences were similar. ‘Early in the morning the tannoy aroused all personnel from their slumbers with the news that a pocket of Jerries were close to our field and that an attack was imminent. Officers and Airmen reported to action stations as instructed and awaited further orders. No offensive was made but although we returned to continue our broken slumbers somewhat after, we had to keep our small arms at hand for any eventuality. It is understood that Jerries had been engaged by the RAF Regiment’ whose duty it was to guard airfields.<sup>44</sup>

With the front now semi-static, the Germans found time to position anti-aircraft batteries in greater numbers. Second TAF noted on 29 November that

'an interesting feature of the rail cutting in Germany itself was the Ack Ack defences found to be located at vulnerable points. In some spots, especially on Tuesday, this was quite intense, suggesting that the enemy had moved up batteries from deeper in the Reich, to make a 20-mile protective belt between the Rhine and the Ruhr rivers.' Much of the anti-railroad work fell to the RCAF who, representing about a quarter of Second TAF's fighters and fighter-bombers, accounted for over half the rail cuts and a third of the locomotives claimed as destroyed (though less than a fifth of the rolling stock).<sup>45</sup>

Since low cloud and rain or snow often masked ground targets, squadrons began experimenting with a 'blind bombing' technique. Ground Control Interception radar (GCI), with its ability to determine range and direction of aircraft, could guide pilots to the vicinity of a target while the fighter-bombers, flying at eight to ten thousand feet, were beyond the range of light anti-aircraft fire. An Operational Research Section would later report that the technique was as effective as visual level bombing methods – meaning it was not sufficiently accurate for targets like railway lines, bridges, or enemy artillery batteries, but might succeed in hitting a large or dispersed factory or vehicle park. On 30 November No 438 managed to complete such a mission, and though good results were claimed, pilots were more impressed by the fact that the new technique would 'mean much more flying for the Squadron'.<sup>46</sup>

After dark, 409 and 410 squadrons continued with the same familiar work that had engaged their attention since August and September – protecting ground forces from predacious night-bombers and fighter-bombers. Though these nocturnal operations, relying on mottled green electronic displays and the unemotional voice of a controller on the ground, might seem particularly unexciting, statistically each time they went up night-fighter crews had a better chance of shooting down an enemy aircraft than the pilots of the more glamorous Spitfire squadrons. The night-flyers averaged thirty-four sorties per victory, while the day-fighters needed 119. On 23 April 1945 409 Squadron shot down six machines in the same night, though only one of the victims, a Focke Wulf 190, could have been considered a modern operational aircraft; the rest were a mixed bag of obsolete Ju 87 Stukas and Ju 52 transports. Over the whole course of the campaign, the two Canadian night-fighter squadrons flying from continental airfields claimed a total of fifty-three enemy aircraft destroyed, while their own casualties amounted to twenty-one aircrew – with over half the latter dying in flying accidents.<sup>47\*</sup>

Also operating at night (and sometimes during the day), though exclusively against ground targets, were the Intruders of 418 Squadron, which, in November, had gone to Hampshire to join their brethren in Second TAF as the sole RCAF unit in No 2 Group. After six weeks of training in ground attack techniques and procedures, they became operational and, in the war's remaining months, would support 21st Army Group – never again claiming an enemy

\* Two 409 Squadron aircraft were lost on 29 September and others on 29 November 1944 and 12 January 1945. No 410 Squadron losses were on 20/21 October, 29 November, and 21 December 1944, and on 6/7 March and 9/10 March 1945. A tenth aircraft (with its crew) was lost in a flying accident after the end of the war, on 11 May 1945.

aircraft destroyed in the air. Routine on any given night called for the squadron to dispatch ten to twelve Mosquitoes on individual patrols over the battle lines to attack, with bomb, cannon, and machine-gun, prearranged objectives or targets of opportunity; when weather conditions made it difficult to see targets, the squadron would attempt blind bombing.<sup>48</sup>

Wing Commander Fumerton having sacrificed his career to get No 406 re-equipped and reassigned, the squadron's pilots were learning to fly Mosquitoes in early November while navigators trained in a whole new array of electronic aids, including AI Mark X, Monica, and Gee. The RCAF wanted them to replace No 418 in the Intruder role, but whether a replacement was necessary was very much in doubt, for by December 1944 the German night-fighter force, like its daytime counterpart, was in serious disarray: the Allied liberation of France and the Low Countries had deprived its crews of their early warning system, while limitations in fuel and training forced an inexorable decline in skills. Needed or not, after six weeks of intensive training 406 Squadron replaced No 418, undertaking its first sorties on the night of 5/6 December 1944. Penetration patrols became the unit's stock-in-trade until the end of the war as it ran up its score largely at the expense of the Luftwaffe's novice pilots, claiming twenty-three aircraft in the air and ten on the ground while losing eleven men killed.<sup>49</sup>

In the Mediterranean, No 417 Squadron was now operating from Fano, on the Adriatic coast about fifty-five miles southeast of Ravenna. Its Spitfire VIIIs – good judges thought this the best of all the Spitfire variants 'from the pure flying point of view' – flew ground attack missions, bombing enemy-occupied houses, gun positions, and the odd bridge. In November, Timothy sorties were introduced, though each was 'no more than a strafing mission without bombs carried out under Rover control.' Weather ruled, and the fall rains seriously hindered operations; over the ninety-two days the squadron flew from Fano, weather scrubbed out flying on thirty-six, and the previous average of twenty-one sorties per day dropped to twelve. But bad weather benefited the squadron in one way – the high casualty rate of the summer ended, and only four Spitfires and one pilot were lost during the fall.<sup>50</sup> Winter would bring a change for the worse, again.

By early December the Eighth Army had battered its way northwards as far as Ravenna, making it necessary for the squadron to move again. On the 4th the airmen left their comfortable billets at Fano and erected tents – in the rain – at a landing strip at Bellaria, just north of Rimini, where they would experience two of the costliest months in the squadron's history. The string of losses began on 10 December, when two Spitfires collided during a Rover mission, neither pilot surviving, and it continued the next day when a pilot was shot down by Flak and captured. Then, on 31 December, the first of a rash of mechanical failures forced one pilot to crash in the sea, his body washing ashore several months later. This was followed within a few days by a pilot having to make a wheels-up landing when his engine cut out over the aerodrome, while another had to jettison his bomb for the same reason, the pro-

jectile striking a building about a mile from the airfield and killing several soldiers.<sup>51</sup>

Encounters with the Luftwaffe were rare, however, and when, on 22 December, three Me 109s intervened during a four-Spitfire patrol in the Verona area and badly shot up one aircraft, it was the squadron's first sight of an enemy fighter in six months. The 109s reappeared in the new year, when eleven of them attacked five of the Canadians, who reported a short dogfight which the enemy quickly broke off.<sup>52</sup>

In Northwest Europe Hitler staked his last significant reserves of men and materiel on the outcome of his *Wacht am Rhein* offensive in the Ardennes. On 16 December 1944 seven Panzer and thirteen infantry divisions crashed through VIII US Corps lines and headed for the Meuse, intending to cut the Allied front in two, seize Antwerp (which was rapidly becoming Eisenhower's main port), and isolate Allied armies in the north. Despite the assistance afforded by abominable flying weather, which gravely handicapped the Allies in the early days, the offensive was stopped in its tracks ten days later, just short of the Meuse. During the battle, and once the weather improved, German air activity in the area increased noticeably, including Me 262s on ground-support missions.<sup>53</sup>

On the 17th – the day after the Ardennes offensive began – Second TAF had agreed to support the Ninth US Air Force, leaving only a few units to protect the Anglo-Canadian front. Patrols were flown largely behind German lines opposite First US Army, serving as an advanced protective screen against Luftwaffe fighters and fighter-bombers while also providing intelligence about enemy movements – information Allied commanders badly needed to get themselves out of the predicament that weak intelligence work had put them in. When the skies finally cleared on 23 December, five days of intense aerial activity followed. On Christmas Eve, as airfields instructed their personnel to carry weapons, the tactical air forces launched so many sorties that air-traffic controllers were almost overwhelmed, and a few Allied pilots were shot down by American anti-aircraft artillery. On Christmas Day, fighters of No 83 Group sighted no fewer than thirty-one Me 262s,<sup>54</sup> German air activity being the heaviest since Market Garden, and the not-so-surprising result was an increase in aerial combats. Squadron Leader J.E. Collier, commanding No 403, shot down an Me 262 single-handedly, the first RCAF pilot to do so.

I was flying KAPOK leader on a patrol in the Malmedy area. I was flying on a westerly course about 15 miles SW of Aachen at 14,000' [feet] when 3 a/c were observed at 3 o'clock 1,000' above and flying in formation on a westerly course toward Liege. I identified the a/c as Me 262s and I set my gyro sight at 50' span. I ordered the Squadron to drop tanks and open up. I was unable to drop my own jet tank. The enemy aircraft continued to do a slow orbit to port gradually going into echelon starboard. They slowly turned across in front of us at about 1000 yds range and 2 of the enemy a/c sighted us and dived away to the east but the leading enemy a/c continued his turn. I [closed to] about 50 yds range in a steep turn to port and the enemy