



Allied airborne invasion of Holland in September 1944

*Operation*  
***Market Garden:***  
*Did Air Power Fail?*



### By Dr Seb Ritchie

There has been a striking tendency in a number of recent histories of Operation Market Garden (the Allied airborne invasion of Holland in September 1944) to criticise the role of air power, and to argue that air power's failure played a central part in the Allied defeat.<sup>1</sup> This appears curious at first, as both the RAF and the USAAF lent their backing to the operation on an immense scale. In a period of nine days some 13,000 air sorties and 2,600 glider sorties were flown in support of Market Garden;<sup>2</sup> if it is considered that poor weather grounded the majority of Allied aircraft on at least two days in this period, the true extent of the air effort will be appreciated. It is nevertheless now common to read that the air forces and their senior commanders — General Breerton of First Allied Airborne Army, and his subordinates, General Williams of 9 (US) Troop Carrier Command, and

Air Vice-Marshal Hollinghurst of 38 Group, RAF — bear primary responsibility for the operation's failure.<sup>3</sup> Employed more efficiently, it is argued, air power could have turned a disastrous defeat into victory. Recently Wing Commander Dave Winstanley has repeated this argument in the *Air Power Review*.<sup>4</sup>

It is a sad reflection on the state of academic research into air power history in Britain today that such views have rarely been properly challenged. Only Sebastian Cox, writing in *Air Clues* two decades ago, has provided serious grounds for reconsidering the role of air power in Market Garden.<sup>5</sup> And yet there are good reasons for treating the allegations of failure with scepticism. Some of the more damaging criticisms were not documented but emerged instead from the memoirs or the recorded testimonies of officers



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from 1 Airborne Division. Their accounts, while of immense historical value, inevitably suffer from predictable problems of bias, parochialism and selective recollection; they represent a very narrow source base for the history of a very large and complex operation.<sup>6</sup> Moreover, few of the historians who have blamed the RAF and the USAAF for the failure of Market Garden are established authorities on air power, or appear to have much knowledge of the parameters within which air operations were conducted in September 1944.

This article re-examines the role of air power in Market Garden, drawing as far as possible

on the surviving official records rather than the published literature. The result is a very different view of the operation. It is suggested, in particular, that the events of September 1944 should be considered in their proper historical context, and that we should not underestimate the immense complexities involved in planning and executing the supporting air operations. It is also argued that any serious attempt to explain Market Garden's failure must primarily consider such issues as conceptual planning, intelligence, and the quality of leadership within the airborne formations. In what follows it has been convenient to employ some of the headings used by Wing Commander Winstanley, namely: historical context, the nature



of airborne warfare, the Market Garden plan, information exploitation, the selection of British landing zones (LZs) and drop zones (DZs), airlift, control of the air and close air support.

**Historical context, and the nature of airborne operations.** Winstanley's account opens with a survey of the historical background to the launch of Market Garden, focusing on the underlying motives behind the operation. He then continues with a selective discussion of the nature of airborne operations, arguing that early German experience had emphasised the importance of shock effect and surprise, but that such fundamentals were ignored during the planning and implementation of Market Garden. He does quite rightly acknowledge the acute risks inherent in airborne warfare, but it is not clear that he fully appreciates their severity.<sup>7</sup>

In the early years of the Second World War, the high reputation of airborne warfare was founded on the first German operations — in Norway, Belgium, and Holland. These certainly benefited from surprise, but the effect was vastly magnified by the fact that, at the time, airborne landings represented an entirely novel method of waging war. Moreover the Germans largely prevailed against weak or poorly led adversaries. Even then, detailed examination shows that these operations did not meet with unqualified success: virtually any failure in planning or execution usually resulted in heavy losses of personnel and/or equipment, because airborne warfare typically involved the insertion of lightly armed troops, lacking logistical support, fire support or mobility, into locations where, potentially, they could find themselves surrounded by heavily armed opponents.<sup>8</sup>

Nazi Germany's love affair with large-scale airborne operations came to an end in May 1941: Operation Mercury, the invasion of Crete, resulted in victory, but at an unacceptable cost — a total of 4,522 casualties from the airborne formations, or 56 per cent.<sup>9</sup> The Germans also lost 350 aircraft, including at least 150 Junkers transports.<sup>10</sup> Although they maintained a substantial airborne

capability for the rest of the war, they subsequently attempted only a limited number of small-scale airborne operations, and the vast majority of their paratroops were employed as conventional infantry.

Following the Crete debacle Hitler declared that the days of parachute troops were over. 'The parachute arm is one that relies entirely on surprise. In the meantime the surprise factor has exhausted itself.'<sup>11</sup> This was undoubtedly true. In future, airborne operations were likely to be far more difficult because opposing forces would be better prepared for them. Certainly in the planning of Market Garden three years later the surprise factor was not ignored, but it was considered difficult to attain. As one Field Order for the operation put it:

*'Tactical surprise is very unlikely and the enemy will undoubtedly have advance knowledge of the approach of Troop Carrier formations through radar plots, visual reconnaissance, or reports from ground or naval forces.'*<sup>12</sup>

Apart from surprise, the other important assumption underpinning German airborne doctrine was that airborne operations should be undertaken in daylight, to ensure the accuracy of parachute drops and glider landings: all the German airborne assaults conducted in 1940-41 were executed in daylight.<sup>13</sup> Due to the inherent vulnerability of transport aircraft — low speed, lack of defence, low altitude and straight and level flight during parachute drops — it followed that control of the air was fundamental to success, both to eliminate the risk of interception by enemy fighters and to suppress ground-based air defences in the drop or landing areas.

The Allied approach was somewhat different, in that the airborne actions which preceded Market Garden were largely subordinated to parallel ground operations, the timing of which dictated that the airborne landings were conducted in darkness. As the Allies lacked control of the air, night operations also provided valuable protection for their transport aircraft. Yet night-time airborne operations raised another acute problem

— navigation. In the early years of the Second World War the science of night navigation was developing only slowly within the RAF; within the USAAF, which would ultimately operate the majority of Allied transport aircraft, it was even less perfectly practised, particularly when the troop carrying aircraft came under fire.<sup>14</sup>

The Allies' first attempt to employ their newly created airborne forces occurred in Tunisia in 1942 and was a fiasco, which contributed nothing to the ultimate victory; in one failed operation the British 2 Parachute Battalion suffered 50 per cent casualties.<sup>15</sup> The second attempt, in Sicily in July 1943, was utterly chaotic. An official report on the British 1 Airlanding Brigade's glider landings behind the beaches records that 'the operation was not a failure . . . but it was a very costly success.' Of their gliders, 69 landed in the sea and a further 10 were completely unaccounted for; 54 landed somewhere in Sicily,<sup>16</sup> but only four gliders landed on their designated LZs.<sup>17</sup>

The troop carriers that conveyed 1 Parachute Brigade to the Primasole bridge were not very much more accurate. Only 39 parachute aircraft dropped their troops on or within half a mile of their DZs, 48 more dropped them over half a mile away and 17 returned to base with some troops still on board. A further 12 were unable to reach or find their DZs at all, and 11 were shot down. At first the Brigade could muster only 12 officers and 283 other ranks, out of a total of 1,856 all ranks who left North Africa.<sup>18</sup> The US No 504 Regimental Combat Team and 82 Airborne Division lost 23 of their 144 aircraft to 'friendly' naval anti-aircraft fire. Only one company and one light battery landed on their correct drop zone, and in the first 24 hours only 37 officers and 518 other ranks were assembled. The US 505 Regiment, destined for the Piano Lupo, was dropped all over southern Sicily.<sup>19</sup> The next Allied airborne operation, at Salerno in September, achieved more success when the airborne troops were merely flown in to reinforce regular ground forces. But operations involving the US 509 Parachute Combat Team inside enemy territory were another matter. Of 40 aircraft involved, only 15 placed their paratroops within five miles of the drop zone. In October

it was reckoned that nearly 20 per cent of those who made the jump were dead, wounded or still missing.<sup>20</sup>

By contrast, Operation Overlord, in June 1944, is generally seen as a success for the Allied airborne formations. Yet all too often this view is based on British perceptions of high-profile but small-scale actions, such as the seizure of Pegasus Bridge, or the destruction of the Merville Battery. The totality of the Allied airborne experience in Normandy (particularly the American experience) was very different. In fact, on the night of 5/6 June 1944, a combination of poor visibility, German flak, and consequent evasive action by the troop carriers caused the US airborne divisions to be widely scattered. Many paratroops were dropped far from their zones; they lost much of their arms and equipment, and suffered massive loss of force cohesion.<sup>21</sup> Around 75 per cent of the US paratroops landed more than five miles away from their zones or beacons. Although the US airlift involved some 13,000 personnel, only around 4,500 were under divisional control after 24 hours.<sup>22</sup> The two US divisions also suffered an estimated 2,500 casualties on the first day of the operation alone.<sup>23</sup>

In the British sector the drops were more concentrated, but were far from perfect. Of 71 troop carriers assigned to one of the three principal drop zones, only 17 dropped their paratroops accurately; at one of the other zones some 35 aircraft dropped inaccurately.<sup>24</sup> Two of the component battalions of 5 Parachute Brigade went into action 40 per cent under strength.<sup>25</sup> Of the 750 men assigned to Lieutenant Colonel TBH Otway to destroy the Merville Battery, he was able to assemble just 150, half of whom became casualties in the subsequent operation.<sup>26</sup> For the US and British divisions far more severe casualties were only avoided because the airborne troops were rapidly reinforced from the landing beaches, only a few miles to the north. The 101 Airborne reported that it could not have held out for much more than 24 hours without support from Utah beach.<sup>27</sup>

In summary, the Allied experience of airborne warfare up to and including Overlord was very far from positive. For a variety of reasons the

Allies were repeatedly compelled to deploy their airborne arm under cover of darkness; but such were the problems of night navigation in combat conditions that these operations were mostly characterised by highly inaccurate drops and landings, by consequent loss of force cohesion and combat power, and also by high casualties. It is against this background that the planning of Operation Market Garden must be considered.

### The Market Garden Plan

The Market Garden plan was primarily devised by Field Marshal Montgomery and involved the seizure by some 35,000 airborne troops of 1 (British) Airborne Division, 82 and 101 (US) Airborne Divisions, and 1 Polish Independent Parachute Brigade, of a series of river and canal bridges along a single road running north from Eindhoven, through Nijmegen, and finally to Arnhem. At the same time, XXX Corps (part of the Second British Army) was to break through the German defences along the Meuse-Escaut canal, south of Eindhoven, and drive rapidly up the same road to establish a 'corridor', linking up with the airborne divisions as it advanced. XXX Corps was to relieve 1 Airborne Division at Arnhem, 64 miles from its starting point, in two or three days, and establish a bridgehead on the north side of the Arnhem road bridge over the Lower Rhine. Montgomery hoped this would become a springboard for a subsequent advance into Germany.

The airborne plan's most original feature was that for the first time in a large-scale Allied airborne operation the airlift was to be made in daylight. This held out at long last the prospect that the overwhelming majority of the airborne forces involved would be dropped or landed at their correct locations, that their weapons and equipment would soon be available to them, that they could be rapidly assembled into cohesive formations, and that virtually all of the forces landed would quickly be available for operations. In short, the airlift would achieve levels of accuracy and concentration completely unprecedented in the otherwise troubled history of Allied airborne warfare. However, a daylight

airlift would only be possible through a massive supporting effort to protect the troop carriers, gliders and tugs — through the assignment to Market Garden of immense numbers of escort fighters and ground attack aircraft for flak suppression.<sup>28</sup>

Otherwise, the most notable feature of Operation Market Garden was that it involved a high level of risk. Montgomery intended to exploit what were thought to be relatively weak German defences in Holland, yet the Allies knew that enemy forces in the area were being strengthened. This meant that Market Garden had to be launched with the very minimum of delay. As one post-operation report put it:

'Actual enemy defensive positions were being improved rapidly, particularly in the Nijmegen-Maas-Waal canal area, but it seemed that these would be inadequately manned if D-day was not postponed.'<sup>29</sup>

Consequently, barely a week was allowed for planning an operation of immense complexity: it was sanctioned on 10 September and launched on the 17<sup>th</sup>. There was no time for detailed consideration, questioning, discussion, and consequent revision of the plans; they had simply to be drawn up and implemented.<sup>30</sup> Moreover, there were no specific training programmes or rehearsals, and virtually no preliminary exercises.<sup>31</sup>

Secondly, the Market Garden plan ignored at least one of the elementary principles of war, namely the concentration of force at the decisive point; for there was no very obvious basis upon which a 'decisive point' within Montgomery's corridor could be identified. The *sine qua non* of the operation was of course the Arnhem road bridge. Yet to the planners of Market Garden the more southerly bridges appeared of equal, or indeed greater importance, because without their capture 1 Airborne Division could not be relieved. Hence the Nijmegen and Eindhoven sectors received priority in the allocation of air transport and (on the opening day of the operation) close air support.<sup>32</sup>



The risk was greater still because the road along which XXX Corps had to advance was barely more than a country lane, raised on an embankment in some areas, bordered by soft ground or thick woodland in others, and wide enough for only one tank; it should not have required exceptional foresight to see that the road would be susceptible to congestion and highly vulnerable to blocking action.<sup>33</sup> Moreover, the corridor could easily be cut from either flank. Market Garden was launched with completely inadequate support to the south-east (which included German territory), or the north-west, where the Germans were re-deploying forces withdrawn from the Scheldt estuary.<sup>34</sup> Such was the threat to the corridor that airborne troops were from the very outset diverted from their primary task of capturing bridges to the undesirable but no less necessary role of blocking counter-attacks into the Nijmegen sector of the corridor.<sup>35</sup> XXX Corps became involved in similar operations, which reached farcical proportions on 22 September when the Guards Armoured Division was actually sent *south* from Nijmegen to confront a German attack on the town of Veghel — more than halfway back to Eindhoven.<sup>36</sup>

In addition, Montgomery's corridor concept had profound implications for air operations in support of Market Garden. As the ground operation was conducted within such a restricted area, it followed that the air space available for air support (in its broadest sense) was restricted as well. Airborne operations, including both airlift and re-supply, had inevitably to be assigned top priority; this meant that escort and flak suppression aircraft had to receive an equivalent status. Consequently close air support and fighter cover for ground troops had effectively to be downgraded. The need to prevent conflict (accompanied by the danger of air-to-air fratricide), caused Second Tactical Air Force (2 TAF) to be excluded from the airspace above the corridor while airlift and re-supply operations were in progress.<sup>37</sup> The task of operating over Arnhem outside these periods was, however, exceptionally difficult because, for logistical reasons, 2 TAF had been unable to match the army's rapid advance from Normandy to the Dutch border in the preceding weeks. As



An aerial reconnaissance photograph of the Arnhem area

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a result, one of 2 TAF's two principal groups, 84 Group, was not based within range of the Market Garden area, and could not participate in the operation at all.<sup>38</sup> The other, 83 Group, was sufficiently far from the northern end of the corridor to make participation extremely difficult.

### Information exploitation

Calculations of the risk inherent in Market Garden naturally involved what is now known as 'information exploitation'; the risks had to be assessed on the basis of Allied intelligence about the strength of German forces in Holland. In this regard it has long been argued that there was a failure to exploit aerial photographic reconnaissance (PR) before the operation. Specifically, PR imagery showing that there were SS panzer formations in the Arnhem area, posing a serious threat to 1 Airborne Division, is said to have been ignored.<sup>39</sup> More recently it has also been suggested that Allied commanders overlooked imagery showing anti-aircraft defences to have been removed from Deelen airfield, close to Arnhem. This was significant because the photographs might have influenced the location of 1 Airborne Division's DZs and LZs, allowing them to land closer to their objectives.<sup>40</sup>

The issue of the panzer divisions is complex, but it is important to remember that PR represents only one source of intelligence, the other main sources for Market Garden being signals intelligence ('sigint') and human intelligence ('humint'). Taken together, these sources made it reasonably clear to both corps and divisional commanders that at least some German armour would probably be encountered in the Arnhem or Nijmegen areas. High-grade sigint ('Ultra') had reported early in September that II SS Panzer Corps was to move to Eindhoven to supervise the refit of several armoured formations. The land component of 1 Allied Airborne Army, 1 Airborne Corps, under General 'Boy' Browning, was warned that 'one broken Panzer Division' had been sent to the Arnhem area for refit and that the presence of II SS Panzer Corps was suspected.<sup>41</sup> At least one report accurately located this division north of Arnhem on 11 September.<sup>42</sup> Other documents suggest that the refitting panzer division was thought to be to the south-east of Nijmegen, in the Reichswald forest, threatening the landing zones assigned to 82 Airborne Division. Although a Market Garden Field Order dated 13 September made no mention of it, an area which 'may be pool for refitting Pz Divs' was clearly indicated in the Reichswald on a map attached as an annex.<sup>43</sup>

As the countdown to Market Garden continued, there was no real change in this intelligence picture. A report prepared by 1 Airborne Division speculated that 'a battle-scarred Pz Div or two' might be 'reforming' south-west of Zwolle, forty miles north of Arnhem.<sup>44</sup> The Dutch resistance warned more ominously that 9 SS Panzer Division was closer to Arnhem, south of Apeldoorn.<sup>45</sup> The PR imagery of panzers near Arnhem which was allegedly obtained at about this time would therefore not have come as much surprise to Browning. But a source of greater concern emerged on 15 September, when further humint indicated that German armour was present in strength in the Reichswald forest.<sup>46</sup>

This threat, at least, was taken very seriously. That same day an assistant to the head of operations in 1 Allied Airborne Army flew to Brussels to discuss air support tasking on the first day of Market Garden with 83 Group, 2 TAF. In raising the specific targeting concerns of 1 Airborne and 82 Airborne Division, he made no reference to the possibility that German armour was located near Arnhem, but again drew attention to the threat of panzers in the Reichswald forest. It was agreed that 83 Group:

*'Would have their Spits watch for any tanks coming out of the woods southeast of the [82 Airborne Division's] DZ-LZ area; and that they would run their RP Typhoons along the edge of these woods at approximately H plus 90.'*<sup>47</sup>

Throughout the planning process, Browning was insistent that the Groesbeek Heights, protecting Nijmegen from German attacks out of the Reichswald, should be secured before 82 Airborne Division sought to capture Nijmegen itself, with its crucially important bridge over the Waal river.<sup>48</sup>

Here was information exploitation of the best kind. Unfortunately, however, the information turned out to be incorrect, for while 82 Airborne Division faced repeated German counter-attacks from the Reichswald forest during Market Garden, no German armoured formations were located there. By contrast, while the proximity of German armour to Arnhem was not ignored (1 Airborne Division deployed with more than 70 anti-tank



guns and numerous PIAT infantry anti-tank weapons),<sup>49</sup> it was clearly considered to pose less immediate danger. This was probably because Browning underestimated the capability of the reportedly under-strength and battle-scarred German forces north of Arnhem and believed that 1 Airborne Division could hold out there until it was relieved from the south. The critical priority was to ensure that the corridor was not severed at Nijmegen, as this would have halted XXX Corps' northward advance.

As for the photographs of Deelen airfield, they were in fact far from conclusive. Taken by a 541 Squadron Spitfire on 6 September, they were afterwards superseded by a study by Headquarters First Allied Airborne Army of imagery gathered between 6 and 11 September. This stated that at Deelen airfield 'Flak is apparently still present in rather large quantity, there being seventeen (17) heavy guns and fifty-five (55) light guns shown as occupied positions on the latest photo cover.'<sup>50</sup> Hence, the most up-to-date intelligence available before Market Garden demonstrated that Deelen still posed a significant threat.

The most striking feature of Allied intelligence on German dispositions in Holland prior to Market Garden was its contradictory character. The only consistent reports in the two weeks before the operation concerned German anti-aircraft defences: virtually all Allied intelligence agreed that German flak was being rapidly augmented along the proposed corridor.<sup>51</sup>

Otherwise, while the surviving intelligence documents mostly emphasise the weakness of German forces in Holland, they are punctuated by suspect inconsistencies and caveats. XXX Corps' detailed orders for Market Garden on 15 September described the total German force in the operation area as 'quite inadequate to offer prolonged resistance along any line', but their previous day's intelligence summary had warned that 'they must oppose us with something'.<sup>52</sup> The 13 September Field Order stated that at Nijmegen evacuated elements of the German 15 Army 'might be preparing river line

or moving into battle area' but later declared that there were 'no confirming reports of troop concentrations' in the town; although the Germans had increased the strength of their outer defensive line in southern Holland, they were thought to have little in reserve. The only enemy forces known to be at Arnhem were the flak units protecting the city, and those defending Deelen airfield.<sup>53</sup> On 14 September 1 Airborne Division's intelligence officer wrote that 'every able-bodied man in uniform who can be armed is in the battle . . . and it is improbable that any formations capable of fighting will be found in an L[ine] of C[ommunications] area.'<sup>54</sup> But the next day another assessment contradicted this report by describing Nijmegen and Arnhem as being among various 'nodal points' which 'are likely to be strongly held for their communications value.'<sup>55</sup>

It is too simple to argue that there was merely a failure of information exploitation in the planning of Market Garden. In fact, the operation plan did seek to exploit available intelligence by reducing, as far as possible, the risk posed by flak to the airborne formations. Equally, it was believed that risks *could* be taken on the ground – that a rapid advance along a narrow axis *could* be achieved — because the bulk of Allied intelligence suggested that the enemy was too weak to offer serious opposition.<sup>56</sup> The primary information exploitation problem in Market Garden was that the two principal ground commanders — Montgomery and Browning — when confronted with contradictory intelligence, were predisposed to attach more weight to optimistic than to pessimistic assessments. This was partly because they underestimated the residual capability of the German army in the aftermath of the Normandy breakout, and the Allies' rapid advance from the Seine to Antwerp, and partly because they were steadfastly determined that Market Garden should be launched as planned, not least for reasons of their own self-aggrandisement.<sup>57</sup> Their perspective remained that enemy reinforcements would not pose a serious danger if the operation began immediately, and if XXX Corps' advance to Arnhem was not significantly delayed.

### **The Impact of Air Power on the Selection of British Landing Zones and Drop Zones**

One of the most common criticisms of the RAF in the planning of Market Garden is that they forced 1 Airborne Division to accept DZs and LZs some seven miles north west of the Arnhem road bridge, near Wolfheze. The distance between these zones and the bridge is held to be primarily responsible for the operation's failure.<sup>58</sup> Before Market Garden there do not appear to have been any significant disagreements between air and airborne divisional commanders about the location of landing areas. But at Arnhem the commander of 1 Airborne Division, Lieutenant General Urquhart, naturally hoped to stage landings close to the road bridge, while his RAF counterpart, Air Vice-Marshal Hollinghurst, favoured Wolfheze.<sup>59</sup> The difference was, of course, that Market Garden was to be launched in daylight.

Here it is necessary to recall that Market Garden grew out of a smaller operation known as Operation Comet, which had the same basic objectives, but which would have involved fewer airborne troops. Proposals to mount Comet in daylight encountered determined opposition from Hollinghurst, who was of course concerned over the threat posed by German flak. Eventually he appealed to the Air Commander-in-Chief, Air Chief Marshal Leigh-Mallory, only to be over-ruled.<sup>60</sup> Subsequently, after Comet's cancellation, it was decided that Market Garden should also be staged in daylight.

Hollinghurst is often condemned for being reluctant to accept risk, yet his anxiety is easy to understand. The operations under consideration were of course the first large-scale airborne operations to be conducted by the Allies in daylight; also, no previous landings had been made immediately adjacent to a large town or city. Moreover, Arnhem was some 64 miles inside enemy territory, and close to the German frontier. Allied intelligence — the only information available to him — showed a steady build up of flak in Arnhem, and also pointed to heavy flak concentrations at Deelen airfield, as we have seen. The routing plans for Comet and Market Garden were such that if the DZs and LZs had been located

near to the road bridge, the (largely American) transport aircraft would have had to over-fly at low altitude both the city and the airfield.<sup>61</sup> Apart from the losses that seemed likely to result — partly to USAAF troop carriers transporting British paratroops — one important lesson of Normandy and Sicily was that heavy flak tended to cause widely dispersed and inaccurate drops, and the loss of much vital equipment. In short, on grounds of flak alone, there seemed to be good reasons for avoiding central Arnhem.

However, predictions of the strength of German flak played only a part in the decision to locate the DZs and LZs at Wolfheze; of equal importance were the mass glider landings. There was never any realistic prospect of safely landing more than 600 gliders in the countryside south of the Arnhem road bridge. Allied intelligence (partly from Dutch liaison officers and partly from aerial photographs) showed that this area was polder-land, criss-crossed by dykes and drainage ditches.<sup>62</sup> According to one post-war official account, the land was divided by the ditches into areas of 50 to 100 metres in width, and 100-200 metres in length; the ditches were 2-3 metres wide and 1.5 metres deep, and contained water about half a metre deep.<sup>63</sup>

Away from the polders, much of the countryside around Arnhem was characterised by small fields. The only larger and more open fields near the town were those actually chosen for the landings, and they were only just large enough.<sup>64</sup> The commander of the Glider Pilot Regiment, Colonel George Chatterton, allegedly suggested it might be possible to land a small glider force (five or six gliders) in the immediate vicinity of the road bridge. However, there is no reason to believe that such a force would have been more successful than Lieutenant Colonel John Frost's Second Parachute Battalion in holding the bridge for long against determined counter-attacks by heavily armed German formations.<sup>65</sup>

It is frequently claimed that in the selection of the DZs and LZs Urquhart was 'over-ruled' by Hollinghurst, yet this seems improbable. Major confrontations between senior operational commanders are normally well recorded in the

official documents. For example, Hollinghurst's appeal to Leigh-Mallory (see above) is so recorded, along with subsequent disagreements over the location of 101 Airborne Division's landing areas around Eindhoven.<sup>66</sup> If Urquhart genuinely believed that the success of Market Garden was being jeopardized by the location of 1 Airborne Division's DZs and LZs at Wolfheze, he had a duty to raise this issue not merely with Hollinghurst, but at higher levels of his command chain. Yet the surviving documents do not record that he took any such action. One reason for this is almost certainly that the areas chosen were at first selected not for Market Garden but for Comet.<sup>67</sup> When Comet was being planned Allied intelligence indicated that only three enemy divisions, of limited capability, were present in the entire corridor area. Arnhem itself was thought to be protected by nothing more than a flak battalion.<sup>68</sup> Clearly there would have been little reason for Urquhart to be particularly concerned over the capacity of his troops to deal with such meagre opposition.

But most of all there was the all-important *quid pro quo* of the daylight airlift. Although Urquhart's forces were to be landed further from the road bridge than he would have wished, the daylight lift offered him immense compensating advantages. So while he may well have expressed concerns to Hollinghurst over the location of the landing area, it is far from certain that he pressed the issue, nor was there any obvious reason for him to do so. It is only with the advantage of hindsight, and because of the subsequent Allied defeat, that historians have blown out of all reasonable proportion the significance of Urquhart's doubts. After 10 September the DZs and LZs selected for Comet were simply expanded to accommodate the far larger forces assigned to Market Garden. Again, there is no record of any protest from Urquhart, presumably because he now assumed that, with many more troops at his disposal, there would be no great difficulty in achieving his objectives.

Urquhart's battle plan also suggests strongly that, despite the location of the DZs and LZs, he was confident of success. Historians often claim that

he was compelled to split his forces on the first day of Market Garden between his ultimate goal — the road bridge — and the landing areas, which had to be held pending the following day's airlift.<sup>69</sup> But he does not appear to have harboured particular concerns over this issue. He afterwards described the airlift as 'quite first class. It was easily the most successful and accurate of any previously achieved either in operations or on exercises.' Moreover, in complete contrast to earlier experience, 'all units were able to move off to their tasks practically at full strength and in a very short time after landing.'<sup>70</sup> And yet, having been gifted the most accurate and concentrated landing in the history of Allied airborne operations, Urquhart chose to despatch the three component battalions of 1 Parachute Brigade into Arnhem along three different routes.<sup>71</sup> They subsequently lost contact with one another, and with their headquarters, because their communications equipment failed. This was unfortunate, but it should not have been unexpected, for poor communications had bedevilled earlier airborne operations — the Bruneval raid, for example, and Sicily.<sup>72</sup>

No 2 Parachute Battalion was ordered to capture the main road bridge, but was also lumbered with a variety of other tasks which would reduce its strength by at least one company before it reached its primary objective. In theory, 3 Parachute Battalion was to 'assist 2 Para Bn in capture of main bridge'. However, given the two battalions' geographical separation this was never likely to be easy. As for 1 Battalion, it was not even sent to the bridge: rather, it was tasked to occupy high ground in northern Arnhem.<sup>73</sup> No 2 Parachute Battalion duly reached the road bridge, demonstrating in the process that the location of the main landing area seven miles away was not, in itself, the fundamental cause of 1 Airborne Division's failure. But a more effective strategy would have been to deploy 1 Parachute Brigade as a single cohesive force. Such a force would almost certainly have been able to overwhelm the low-calibre German units which prevented 1 and 3 Battalions from advancing into Arnhem, well before the SS panzer formations encamped to the north and east could be deployed in the town in strength.<sup>74</sup>





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#### **The Airlift**

One of the most difficult issues facing the Market Garden planners was that insufficient aircraft were available to convey all three airborne divisions into Holland in a single lift. This raised acute prioritisation issues which were, as already suggested, inherent in Montgomery's basic 'corridor' concept. Browning believed that top priority in the allocation of air transport should go to the Eindhoven and Nijmegen sectors of the corridor; if 101 and 82 Airborne Divisions secured their objectives, XXX Corps would advance rapidly north to relieve 1 Airborne Division at Arnhem.<sup>75</sup> The entire operation, he explained to Urquhart, had to be planned from south to north, 'bottom to top'; objectives in the southern and central sections of the corridor must be 'seized first to get the ground forces through — otherwise, the

First Airborne would be wiped out.'<sup>76</sup> Those who suggest that priority should have been assigned to the Arnhem airlift appear not to understand the fundamentals of Browning's thinking.

As the airborne divisions could not be infiltrated in a single airlift, the scheduling of follow-up lifts had to be carefully considered. At an early stage in the planning process, senior USAAF commanders within First Allied Airborne Army (specifically Brereton and Williams) decided to restrict operations to a single lift per day, over three days; in practice, however, it was planned that most of the airborne troops, including the whole of 1 Airborne Division, would be infiltrated over two days. Historians have severely criticised this decision on the grounds that it significantly reduced the force available at Arnhem on the first

day of Market Garden.<sup>77</sup> It is commonly maintained that the availability of a larger force, brought in by two lifts on 17 September, would have allowed Urquhart's division to achieve its objectives.

This argument is based on a fundamental misunderstanding of 1 Airborne Division's battle plan. Urquhart never envisaged that the formations conveyed by the second lift — the second contingent of 1 Airlanding Brigade, and the whole of 4 Parachute Brigade — would fight alongside 1 Parachute Brigade. Instead, 1 Airlanding Brigade was to establish an outer defensive line west of Arnhem — only a short distance from their LZs — while 4 Parachute Brigade was to form a similar line on the northern outskirts of the town.<sup>78</sup> In the event both brigades were largely wasted: several battalions were despatched from the DZ/LZ area towards Arnhem at different times, compounding 1 Airborne Division's fragmentation, while two of the three battalions of 4 Parachute Brigade were sent to the north of the city. Sadly, they suffered heavy casualties and achieved literally nothing.<sup>79</sup>

It nevertheless seems necessary to explore Brereton's thinking on the airlift in more depth. Operation Comet, scheduled for the beginning of September, had envisaged two airlifts on its opening day, the first transiting in darkness and reaching the landing area early in the morning. Having returned to Britain, and having undergone the normal maintenance processes, refuelling, reloading and glider marshalling, the troop carriers and tugs were then to return to Holland. This second lift was scheduled to reach its landing areas between 1745 and 1900.<sup>80</sup>

Early in September this timetable left only limited room for unexpected delays; by mid-September, with rapidly reducing hours of daylight in northern Europe, it left no room whatsoever.<sup>81</sup> If it is also considered that the number of aircraft involved in Market Garden was far greater than the number in Comet, and that the Allied transport fleet as a whole was suffering from a serious shortage of ground personnel, the dimensions of Brereton's problem will be understood. The

prospect of squeezing two airlifts into one day without one or the other not only flying but also making parachute drops and glider landings in darkness was extremely remote. This in turn had far reaching implications, for the navigational task of staging an accurate lift to landing areas up to 100 miles from the Dutch coast in darkness and, at this time, without moonlight, was one of unprecedented difficulty.

It is also important to bear in mind that the airlifts had to be closely co-ordinated with escort and flak suppression operations. It would have been far more difficult to effect such co-ordination for two airlifts at each end of the day than for one lift in the middle of the day, assuming that the escort fighters and ground-attack aircraft could have been turned around in parallel with the air transport fleet. The navigation issue was also of importance here: as Hollinghurst told his senior staff officer on 11 September, 'the operation will be carried out in broad daylight (because the 8<sup>th</sup> Air Force cannot operate their fighters at early dawn or dusk).'<sup>82</sup> In short, if the potential difficulties involved in conducting a double airlift on the first day of Market Garden are considered in their proper context, the decision to mount only a single lift appears less susceptible to criticism. It must also be remembered that the decision was taken in the expectation that German ground forces in the Arnhem area would not be capable of very effective opposition.

The compensating feature of the airlift plan was that the first two lifts were both scheduled to take place within 24 hours. Both the initial landings and XXX Corps' offensive at the southern end of the corridor were scheduled for a period between 1300 and 1430 on 17 September. This synchronisation was crucial: an earlier lift would have warned German forces at the southern end of the corridor of an impending offensive, while an earlier attack by XXX Corps would have alerted the Germans further north. The initial landings and the ground operation had to be precisely co-ordinated. As the second airlift was scheduled for 1100 on 18 September, the plan still promised to deliver the whole of 1 Airborne Division to Arnhem less than one day after the initial landing *and* less than



*Urquhart went so far as to suggest that CAS 'might easily have turned the scale and allowed the whole of 1 Para Bde to have concentrated near the main Arnhem Bridge'. Many historians have accepted Urquhart's judgment*

Lieutenant General Urquhart

one day after XXX Corps began their advance. In practice, poor visibility in Britain delayed the lift on 18 September so that the landings began at 1400, but this still meant that 1 Airborne Division was brought into Holland in about 25 hours.<sup>83</sup>

Had a double lift been attempted on 17 September (and assuming both lifts were successful), the troops conveyed by the first lift would have landed at dawn, and would have been exposed in the field for the entire day before the second lift arrived; it could not have arrived before late afternoon. Given the time required for their assembly and the collection of equipment, it is extremely unlikely that the force elements infiltrated by the second lift could have been employed before nightfall. Therefore 1 Airborne Division would not have begun operations at full divisional strength (had such operations been planned) until dawn on the

18<sup>th</sup>, at least 24 hours after their initial landing. In short, they might have gained just one hour's advantage from a double lift on 17 September.

#### **Control of the Air and CAS Operations**

Control of the air is fundamental not only to air warfare but to nearly all types of military operation. However, Stephen Badsey has argued that the Allies fought Market Garden with 'air inferiority, which was self-inflicted'.<sup>84</sup> Furthermore, the Second Tactical Air Force — 2 TAF — has often been severely censured for failing to provide sufficient close air support (CAS) for 1 Airborne Division at Arnhem, and indeed for Market Garden as a whole. After the operation Urquhart went so far as to suggest that CAS 'might easily have turned the scale and allowed the whole of 1 Para Bde to have concentrated near the main Arnhem Bridge'.<sup>85</sup> Many historians have accepted Urquhart's judgment.



Neither criticism is supported by much evidence. Where control of the air is concerned, Allied barrier patrol and fighter escort operations during Market Garden were so completely successful that the Luftwaffe failed to intercept a single aircraft involved in the various Market Garden airlifts. This achievement was all the more remarkable because the Allies lacked comprehensive radar coverage and fighter control capabilities in northern Holland when the operation was launched.<sup>86</sup>

The Luftwaffe subsequently enjoyed one solitary success against a re-supply mission over Arnhem on 21 September, shooting down 18 aircraft after a breakdown in co-ordination between the transports and their escort fighters. The German documents suggest, however, that the Luftwaffe aircraft involved were fighter-bombers rather than interceptors, despatched on a ground-attack mission after it was thought that Allied aircraft had left the area.<sup>87</sup> In other words, the Germans were never intending to contest Allied air superiority; their success was a matter of pure luck. Otherwise, Luftwaffe operations largely took the form of hit-and-run attacks against Allied airborne troops in Arnhem and occasionally Nijmegen. Such tactics were entirely in keeping with Luftwaffe practice since the Normandy landings, and there is no evidence that the Allies expected to be immune from them.<sup>88</sup> Indeed, an Allied report on Luftwaffe activity during Market Garden recorded that 'the German fighter reaction has been very close to the 100-150 sorties forecast as the average to be expected over a period of three days following the actual landing.' Moreover, the Luftwaffe contributed little to the Allied defeat:

*'The support given by the German Air Force to the ground troops, either in intercepting transports and gliders en route, or dealing with troops that had already landed, was small. Its part in combating the Allied airborne landings has been a minor one, was largely ineffective, and has contributed little to the outcome of these operations.'*<sup>89</sup>

Responsibility for control of the air when airlift or re-supply operations were not taking place rested with 2 TAF. Due to the airspace

deconfliction measures described above, and to the frequent revision of air transport schedules because of the weather, gaps in fighter cover over the northern end of the corridor tended to appear before the arrival of US Eighth or Ninth Air Force escort or barrier patrol fighters, or after their departure.<sup>90</sup> This area of the corridor was, of course, furthest from the 2 TAF airfields in Belgium, and fighter endurance was therefore an additional problem. The Air Officer Commanding 2 TAF had specifically raised this issue at the very highest levels shortly before Market Garden, but at that time no longer range fighters could be spared from Britain (then still under attack from V1 flying bombs).<sup>91</sup>

There is no doubt that co-ordination between these formations could have been better. However, the deficiencies resulted largely from the fact that Montgomery had, at only seven days' notice, imposed his operation on Allied air formations which were normally charged with entirely different responsibilities. The Eighth Air Force, which provided the majority of escort and barrier fighters, was chiefly involved in strategic bombing operations over Germany, while the Ninth Air Force had, until Market Garden, been entirely committed to tactical and air superiority operations in support of US ground forces in France; 2 TAF had predominantly been used to provide equivalent support to the British and Canadian armies advancing through northern France into Belgium and had virtually no experience of working with airborne formations. The problems were exacerbated by the fact that their respective headquarters were located at some distance from one another, with the Eighth Air Force (as well as the Allied air transport commands) being based in Britain. The immense geographical area over which air operations were conducted, encompassing different time and weather zones, magnified the difficulties involved in scheduling rendezvous and relays accurately.<sup>92</sup>

More comprehensive control of the air over the northern end of the Market Garden corridor would

have required the extension of full radar and fighter control coverage to this area, the movement of 2 TAF airfields to the Holland-Belgium border, and probably the creation of command and control machinery specifically designed to co-ordinate the activities of 2 TAF with those of the Eighth and Ninth Air Forces. As none of these things were likely to happen in the seven days Montgomery allowed for planning the operation, it can only be concluded that the level of control of the air established during Market Garden was the best that could be achieved in the prevailing circumstances.

As for CAS, limitations in its availability were always inherent in Montgomery's plan for Market Garden. As we have seen, airspace constraints over the corridor prevented CAS from being undertaken while airlift or re-supply operations were in progress; if the weather then delayed transport missions from Britain (and it did so repeatedly), the time available for CAS was reduced still further.<sup>93</sup> As 2 TAF's operations were also disrupted by adverse weather and poor visibility in the Low Countries, there was often very little time left for any CAS to be carried out at all.<sup>94</sup>

Nevertheless, the common argument that 2 TAF was barely involved in the operation is impossible to sustain. Their contribution was of course limited by the fact that 84 Group was not based within range of northern Holland. Nevertheless, on 17 September, before the airlift, 83 Group Typhoons together with Mosquitoes, Mitchells and Bostons from 2 Group attacked German flak and gun positions in Arnhem.<sup>95</sup> Later that day the Typhoons played a vital role in helping XXX Corps to break through German defences at the southern end of the corridor; this was crucial if 1 Airborne Division was to be relieved according to schedule.<sup>96</sup>

Over the next two days, because of airspace limitations and poor weather in Belgium and Holland, they flew hardly any sorties.<sup>97</sup> But on 20 and 21 September they flew armed reconnaissance over Arnhem. On 22 September they were again involved in critically important operations further south: they were instrumental in defeating German

attempts to cut the corridor in the Veghel area. The next day they were in action in both the Veghel and Arnhem areas, and against German rail traffic heading for Holland; on the 24<sup>th</sup> they attacked German positions to the west of Arnhem, and rail traffic heading for Arnhem.<sup>98</sup> Suggestions that 2 TAF may have turned down nearly 50 per cent of requests for CAS from 1 Airborne Corps during Market Garden are completely unfounded. The often-quoted 50 per cent figure actually refers to the period 22 September to 8 October 1944. It is not clear that 83 Group received *any* requests for CAS over Arnhem before 22 September; on the 22<sup>nd</sup>, 23<sup>rd</sup> and 24<sup>th</sup> they operated to their maximum capacity in support of Market Garden, and on the 25<sup>th</sup> the withdrawal of the remnants of 1 Airborne Division across the Lower Rhine effectively brought the operation to an end.<sup>99</sup>

So what did go wrong with CAS over Arnhem? The answer is that in September 1944 1 Airborne Division was completely unfamiliar with CAS techniques, tactics and procedures; the division did not even possess ground-to-air radios. When Market Garden was sanctioned, 1 Airborne Corps as a whole had no air support facility in their signals organisation: they were not linked into the general army signals net that was used for requesting air support.<sup>100</sup> This basic shortcoming within the Allied airborne arm had been identified before the Normandy campaign, but no remedial action had been taken. Based in England, 1 Airborne Division also lacked much contact with 2 TAF, which was of course located in France and Belgium.<sup>101</sup>

On the very eve of Market Garden each airborne division and 1 Airborne Corps headquarters were allocated two US air support parties. Between them, they were supposed to operate an air support signals net, and ground-to-air radios. They had no experience of working with British airborne formations, and were unfamiliar with some of their radio equipment. The air support teams that accompanied 1 Airborne Division to Arnhem proved a complete failure. The first team never succeeded in contacting the rest of the net. The only requests that reached 2 TAF from Arnhem came via 64 Medium Regiment,

*The potential for 83 Group's Typhoon squadrons to find targets around Arnhem in the short time available without specific target information was extremely limited*



Royal Artillery, who established the single radio link with the bridgehead — but not until they advanced north of Nijmegen on 22 September. Requests were then passed to 1 Airborne Corps headquarters, to XXX Corps, and then to 2<sup>nd</sup> Army, who passed them to 2 TAF; 2 TAF passed them to 83 Group, who then passed them to the squadrons. It is hardly surprising that this convoluted chain was not particularly responsive.<sup>102</sup> Requests were also received from 1 Airborne Corps headquarters based on such general information as they possessed on the situation at Arnhem, but some of these were rejected because they were accompanied by vague and imprecise targeting information. This may seem over-cautious, but the reality was very different.

To begin with, there were no forward air control facilities to guide the Typhoons to targets in the

Arnhem area. The second air support team with 1 Airborne Division was unable to contact any aircraft directly: their radios had been wrongly set up, and not tested, before Market Garden. Enemy fire had in any case put them out of action by 20 September.<sup>103</sup> Secondly, before the operation, a bomb line had been agreed between 2 TAF and 1 Airborne Division which, as events turned out, bore no relation to the dispositions of British or German forces in the area: it was well outside Arnhem. The risk of inflicting friendly casualties would have discouraged uncontrolled air attacks inside the line; there had of course been numerous blue-on-blue incidents in Normandy, for which the Allied air forces had been heavily criticised by army commanders.<sup>104</sup> Thirdly, the Typhoon squadrons were between 17 and 23 September flying from airfields near Brussels and Antwerp.<sup>105</sup> The Typhoon was a converted air defence fighter,



designed for home-based interception duties. Its endurance was limited, and became even more so when it was carrying a full load of rockets. It is not clear precisely how long the Typhoons that flew armed reconnaissance over Arnhem on 20 and 21 September could linger over the city, but 15 minutes would be an optimistic estimate.<sup>106</sup> Finally, the Typhoons had often to fly at times of the day when visibility was deteriorating, because the best daylight hours had been allocated to lift or re-supply missions.<sup>107</sup>

In summary, the potential for 83 Group's Typhoon squadrons to find targets around Arnhem in the short time available without specific target information was extremely limited. Why then were they able to do so on 23 and 24 September? The answer lies primarily in their movement on the 22<sup>nd</sup> to a new forward airfield inside the Market Garden corridor near Eindhoven. This move, which was conducted at the earliest possible moment, markedly reduced their transit time to Arnhem, allowing them to spend more time over the city searching for ground targets.<sup>108</sup>

### Conclusion

The starting point for any objective history of Market Garden should be one simple truth: airborne warfare frequently involves an exceptional degree of risk. In essence, airborne forces voluntarily isolate themselves on the battlefield. Their success also depends on a wide range of preconditions, including at least temporary control of the air, the absence or suppression of ground-based air defences, good navigational conditions, accurate drops, surprise, the absence of numerous and heavily armed enemy ground forces (confirmed by accurate and up-to-date intelligence), and, most importantly of all, rapid reinforcement from friendly ground forces over land. For the Western Allies, in the operational circumstances prevailing for much of the Second World War, this was a hugely ambitious wish-list and it was rarely fulfilled. The consequences were all too evident in Tunisia, Sicily, Italy and Normandy.

Nevertheless, in September 1944 Montgomery elected to use this high-risk medium of warfare

as part of a broader high-risk venture, involving the advance of XXX Corps 64 miles up a single vulnerable axis to the Arnhem road bridge. The operation's success depended overwhelmingly on the perception that German forces in the area were weak, and lacking any significant depth – a picture reinforced by much of the available intelligence. Yet some intelligence available before Market Garden warned of the potential for stronger enemy resistance. Unfortunately, when presented with these contradictory messages, senior commanders chose to accept the intelligence that they wanted to read. The apparent threat from German armour around Nijmegen was taken very seriously, and the presence of panzers near Arnhem was not ignored. But Montgomery and Browning convinced themselves that the operation would succeed if it began immediately, and if 1 Airborne Division was relieved quickly.

They could not have been more mistaken. Montgomery's corridor was easily blocked, and repeatedly counter-attacked from its exposed flanks; confronted by stronger resistance than expected, particularly in Nijmegen and to the north of the town, XXX Corps' advance faltered, and fell far behind schedule.<sup>109</sup> By the time their forward elements reached the Lower Rhine, the Germans had long since retaken the road bridge from 2 Parachute Battalion; 1 Airborne Division had already lost much of its strength and was cut off on the north bank of the river – well away from the bridge — by vastly superior enemy forces.

If Market Garden is considered in this context, then it can be more easily appreciated that any part played by air power in the operation's failure was inconsequential. The hackneyed critique of Hollinghurst's role in the location of the Arnhem DZs and LZs at Wolfheze is in any case flawed. The decision to choose Wolfheze was entirely rational given the topography of the area, the available intelligence on the strength of German flak, and the prevailing view that German ground forces were not capable of posing a significant threat. As 1 Airborne Corps' post-operation report stated:

*'The general picture . . . was that the flight and landings would be hazardous, that the capture intact of the bridge*

*objectives was more a matter of surprise and confusion than hard fighting, that the advance of the ground forces would be very swift if the airborne operations were successful, and that, in these circumstances, the considerable dispersion of the airborne forces was acceptable.*<sup>110</sup>

Moreover, if Urquhart had anticipated exceptional difficulty reaching the Arnhem road bridge from the landing area, he would surely have challenged Hollinghurst more forcefully, and placed his concerns on record. That he expected no such difficulty is also suggested by his decision to divide 1 Parachute Brigade on landing, thus throwing away the enormous advantage which the daytime airlift conferred on his division, and by his assignment of less than two battalions to the road bridge. The other common criticism – that 1 Airborne Division should have been airlifted into Arnhem in a single day – also does not stand up to detailed analysis. The formations conveyed by the second lift were not assigned to central Arnhem in Urquhart's battle plan. Moreover, even if dawn and dusk lifts had been successfully staged on 17 September, 1 Airborne Division would have gained at best about one hour's advantage over the airlift plan that was actually implemented. It seems highly unlikely that this would have made the difference between success and failure.

Would more comprehensive air cover or close air support have allowed the Allies to snatch victory from the jaws of defeat? Again, this seems improbable. The Allies in fact dominated the air throughout much of Market Garden; 1 Airborne Division was destroyed by German ground forces rather than by the Luftwaffe. And if more effective CAS was a fundamental prerequisite for victory, then 1 Airborne Corps and its component divisions should have paid more attention to the relevant techniques, tactics and procedures in the preceding months. Ideally, the operation should not have been launched until 2 TAF was better placed to intervene at the northern end of the corridor. The problem here, of course, was that Montgomery could not risk delaying Market Garden, because the Germans were known to be strengthening their defences in Holland.

The truth is that air power contributed a great deal to Market Garden. The airlifts were far more accurate than any Allied airborne lifts previously attempted. The combination of evasive routing and flak suppression allowed the lifts to be undertaken with only minimal losses to German ground-based air defences, and Allied barrier and escort fighter patrols also prevented the Luftwaffe from intercepting the airborne armada. Subsequent (largely futile) re-supply operations for 1 Airborne Division were executed with incredible bravery and self-sacrifice by the RAF transport force. Despite the problems facing 2 TAF, Luftwaffe operations at the northern end of the corridor were largely restricted to limited hit-and-run ground attacks; meanwhile, the Typhoon squadrons of 83 Group played a crucial part in XXX Corps' initial advance on 17 September, and a no less vital role in preventing the Germans from cutting the corridor at Veghel on the 22<sup>nd</sup>. They also deployed forward into the corridor at the earliest possible moment, so improving their ability to operate over Arnhem.

The Allied defeat in September 1944 stemmed overwhelmingly from Montgomery's decision to use at minimal notice an extremely high-risk medium of warfare in an equally high-risk, conceptually-flawed and poorly led undertaking based on contradictory intelligence and a chronic underestimate of the German armed forces' residual fighting capability. It would be naïve and unrealistic to expect that air power alone should somehow have compensated for these more fundamental causes of Market Garden's failure.

## Notes

1 The most outspoken recent account is William F. Buckingham, *Arnhem 1944* (Tempus, 2002); somewhat less polemical but broadly similar arguments are contained in AD Harvey, *Arnhem*, (Cassell, 2001).

2 Report by First Allied Airborne Army entitled 'Operations in Holland, September to November 1944', 22 December 1944 (held at Air Historical Branch).

3 Buckingham, *Arnhem 1944*, pp.231-32; Harvey, *Arnhem*, pp.37-9, 180.

4 Wing Commander Dave Winstanley, 'How Critical was Air Power in the Failure of Operation Market Garden?', *Royal Air Force Air Power Review*, Vol 7, No 3, Autumn 2004.

5 Sebastian Cox, 'Air Power in Operation Market Garden', *Air*

- Clues, April, May and June, 1985.
- 6 One problem for historians has been that very few official documents survive on the planning and execution of Market Garden – hence the dependence on personal recollections and memoirs.
- 7 Winstanley, 'How Critical was Air Power', pp.94-7.
- 8 Callum MacDonald, *The Lost Battle: Crete 1941* (Papermac, London, 1995), p.37; Philip de Ste. Croix (ed.) *Airborne Operations: An Illustrated History of the Battles, Tactics and Equipment of the World's Airborne Forces* (Salamander, London, 1982), pp.38, 47.
- 9 Shelford Bidwell, 'Operation Mercury – The Invasion of Crete', in Ste. Croix (ed.), *Airborne Operations*, p.61.
- 10 A. Beevor, *Crete: The Battle and the Resistance* (Penguin, London, 1991), pp 229-30. Some sources record a figure of 170 lost transport aircraft.
- 11 Callum MacDonald, *The Lost Battle: Crete 1941* (Papermac, London, 1995), p.301; A. Beevor, *Crete: The Battle and the Resistance*, pp.230, 229-30.
- 12 Air 37/1217, Headquarters Troop Carrier Forces, US Army Air Forces, Field Order No. 4 for Operation Market, 13 September 1944.
- 13 Some transits were made in darkness, timed so that the landings occurred at dawn.
- 14 *Airborne Missions in the Mediterranean, 1942-1945* (USAF Historical Division, Research Studies Institute, Air University, 1955), pp.3, 10, 28.
- 15 Buckingham, Arnhem, p.20.
- 16 Report on Training and Operations in North Africa and Sicily by 38 Wing, RAF, May/July 1943 (held at Air Historical Branch), para 29.
- 17 *Airborne Missions in the Mediterranean, 1942-1945*, p.46.
- 18 Lieutenant-Colonel TBH Otway, *Airborne Forces (The War Office, 1951)*, p.127.
- 19 Ste. Croix (ed.), *Airborne Operations*, pp.85-6,
- 20 *Airborne Missions in the Mediterranean, 1942-1945*, pp.65-9.
- 21 Stephen Ambrose, *D Day June 6 1944: The Battle for the Normandy Beaches* (Pocket Books, London, 2002), p.222.
- 22 John C Warren, *Airborne Operations in World War II, European Theatre* (USAF Historical Division, Research Studies Institute, Air University, 1956), p.58.
- 23 Shelford Bidwell, 'The Airborne Assault on France', in Ste. Croix (ed.), *Airborne Operations*, p.105.
- 24 Air Publication 3231, *Airborne Forces* (Air Ministry (AHB), 1951), pp.125-28.
- 25 Otway, *Airborne Forces*, p.179.
- 26 Ambrose, *D-Day*, pp.228-30.
- 27 Warren, *Airborne Operations*, p.59.
- 28 Air 37/1214, *Allied Airborne Operations in Holland, September-October 1944*, para 21.
- 29 Air 37/1214, *Allied Airborne Operations in Holland, September-October 1944*, para 12.
- 30 Harvey, Arnhem, p.37.
- 31 Warren, *Airborne Operations*, p.99.
- 32 Air 37/1214, *Allied Airborne Operations in Holland, September-October 1944*, para 25.
- 33 Harvey, Arnhem, pp.115-16.
- 34 Richard Lamb, *Montgomery in Europe, 1943-1945: Success or Failure?* (Buchan & Enright, London, 1983), pp.212, 221.
- 35 Cornelius Ryan, *A Bridge Too Far* (Wordsworth Editions, Ware, 1999), p.89.
- 36 Harvey, Arnhem, p.133-34.
- 37 Ian Gooderson, *Air Power at the Battlefield: Allied Close Air Support in Europe, 1942-1945* (Frank Cass, London, 1998), p.97.
- 38 WO 219/4998, memorandum by Lieutenant Colonel J. Larocque, Air Corps, Assistant G3, to Brigadier General Stearley, 18 September 1944.
- 39 Winstanley, 'How Critical was Air Power', pp.101-102.
- 40 This assertion appeared in P. Harclerode, *Arnhem: A Tragedy of Errors* (Caxton Eds., London, 1994), pp.64-5. It was based on photographs taken on 6 September, whereas Major Lowe's report (cited in note 51) was based on imagery gathered between 6 and 11 September.
- 41 FH Hinsley, EE Thomas, CAG Simkins, and CFG Ransom, *British Intelligence in the Second World War, Vol 3, Part 2* (HMSO, London, 1988), pp.383-84.
- 42 WO 219/4999, Order of Battle Summary, by G-2, HQ 82 Airborne Division, 11 September 1944.
- 43 Air 37/1217, Headquarters Troop Carrier Forces, US Army Air Forces, Field Order No. 4 for Operation Market, 13 September 1944.
- 44 WO 219/5137, 1 Parachute Brigade Intelligence Summary No 1, by Capt WA Taylor, 13 September 1944.
- 45 Ryan, *A Bridge Too Far*, p.99.
- 46 Air 37/615, Major ME Stuart to Commanding General, British Airborne Corps, 15 September 1944.
- 47 WO 219/4998, memorandum by Lieutenant Colonel J. Larocque, Air Corps, Assistant G3, to Brigadier General Stearley, 18 September 1944.
- 48 Warren, *Airborne Operations*, p.93
- 49 Harvey, Arnhem, p.35.
- 50 WO 219/4997, HQ First Allied Airborne Army, Flak Estimate, Operation Market, prepared by Major TJ Lowe, 12 September 1944.
- 51 See for example WO 219/4997, HQ First Allied Airborne Army, Flak Estimate, Operation Market, prepared by Major TJ Lowe, 12 September 1944; Air 37/1217, Headquarters Troop Carrier Forces, US Army Air Forces, Field Order No. 4 for Operation Market, 13

- September 1944.
- 52 Harvey, Arnhem, pp.35-6.
- 53 Air 37/1217, Headquarters Troop Carrier Forces, US Army Air Forces, Field Order No. 4 for Operation Market, 13 September 1944.
- 54 Air 37/1217, Operation Market, 1 Airborne Division Planning Intelligence Summary No 2, prepared by G2 (I), 1 Airborne Division, 14 September 1944.
- 55 WO 219/4998, Enemy Situation on Second Army Front, report by Lieutenant Colonel AG Tasker, 15 September 1944.
- 56 Air 37/1214, Allied Airborne Operations in Holland, September-October 1944, paras 9, 22-25.
- 57 Lamb, Montgomery, pp.223, 226-27.
- 58 Buckingham, Arnhem 1944, p.231.
- 59 Winstanley, 'How Critical was Air Power', p.100.
- 60 Air 37/1217, Hollinghurst to Major-General Paul Williams, Commanding General, IX Troop Carrier Command, 11 September 1944.
- 61 Cox, Air Power in Operation Market Garden, p.195.
- 62 Air 37/1214, Allied Airborne Operations in Holland, September-October 1944, para 13.
- 63 The Liberation of North-West Europe, Vol. 4, The Breakout and the Advance to the Lower Rhine, 12 June to 30 September 1944 (unpublished official narrative, Air Historical Branch), p.169, note 1.
- 64 Report on the British Airborne Effort in Operation 'Market', by 38 and 46 Groups, 1 January 1945 (held at Air Historical Branch), paras 20-23, 161. The maps accompanying this report reveal extraordinary crowding at the Arnhem LZs on 18 September 1944. A contemporary map illustrating the field systems and polder land around Arnhem is contained in After the Battle: No. 2, The Battle of Arnhem (Battle of Britain Prints International, London, 1973), pp.2-3.
- 65 Harvey, Arnhem, p.44.
- 66 Air 37/1217, Hollinghurst to Major-General Paul Williams, Commanding General, IX Troop Carrier Command, 11 September 1944; WO 219/4997, memorandum by Lieutenant General Lewis Brereton, 11 September 1944.
- 67 Maps of the Comet landing areas are in Air 37/979.
- 68 WO 205/850, Advanced Headquarters, IX Troop Carrier Command, Warning Order for Airborne Operation, 6 September 1944.
- 69 Winstanley, 'How Critical was Air Power', p.101.
- 70 Air 37/1217, Major General R Urquhart to Air Vice-Marshal Hollinghurst, 27 September 1944.
- 71 WO 219/5137, 1 Airborne Div Op Instr No. 10, Additional Notes on Operation Market, 13 September 1944, para 7.
- 72 Otway, Airborne Forces, pp.69, 128-31.
- 73 WO 219/5137, 1 Airborne Div Op Instr No. 10, Additional Notes on Operation Market, 13 September 1944, para 8 (a), (b), and (c).
- 74 Harvey, Arnhem, pp.66-8, 71.
- 75 Air 37/1214, Allied Airborne Operations in Holland, September-October 1944, para 21.
- 76 Ryan, A Bridge Too Far, p.93.
- 77 Harvey, Arnhem, p.180; Buckingham, Arnhem 1944, p.231.
- 78 WO 219/5137, 1 Airborne Div Op Instr No. 10, Gen Div Plan, 13 September 1944, para 4 (a) and (b).
- 79 Harvey, Arnhem, pp.99-100.
- 80 Air 37/979, 38 Group Operation Order No 524, Operation Comet, 6 September 1944.
- 81 WO 219/4998, Lieutenant Colonel T Bartley, HQ FAAA, to Chief of Staff, FAAA, 10 September 1944.
- 82 Air 37/1217, Hollinghurst to SASO, 11 September 1944.
- 83 Warren, Airborne Operations, p.117.
- 84 Quoted in Winstanley, 'How Critical was Air Power', pp.93, 99.
- 85 1 Airborne Division, Report on Operation 'Market', 10 January 1945 (held at Air Historical Branch), paras 226-27 .
- 86 JS Cox, 'Air Power in Operation Market Garden', pp.193, 231.
- 87 War Diary of Luftflotte 3, September 1944, entry of 21 September 1944.
- 88 The Luftwaffe's tactics are well described in The Liberation of North-West Europe, Vol. 4, The Breakout and the Advance to the Lower Rhine, 12 June to 30 September 1944 (unpublished official narrative, Air Historical Branch), pp.30-32.
- 89 WO 205/693, report entitled 'German Air Force Reaction to Airborne Landings in Holland', by Colonel J. Cella, GSC, AC of S, G-2, First Allied Airborne Army, 2 October 1944.
- 90 Air 37/706, report by Air Officer Commanding-in-Chief, 2 TAF, 5 January 1945.
- 91 The Liberation of North-West Europe, Vol. 4, The Breakout and the Advance to the Lower Rhine, 12 June to 30 September (unpublished official narrative, Air Historical Branch), p.125.
- 92 Cox, 'Air Power in Operation Market Garden', pp.194, 231.
- 93 Air 37/706, report by Air Officer Commanding-in-Chief, 2 TAF, 5 January 1945.
- 94 Cox, 'Air Power in Operation Market Garden', p.230.
- 95 Warren, Airborne Operations, p.100.
- 96 Gooderson, Air Power at the Battlefront, pp.87-90.
- 97 WO 205/872, Operation Market Garden, 17-26 September 1944, by 21 Army Group.
- 98 Air 27/1134, 181 Squadron Operations Record Book (ORB); Air 27/1136, 182 Squadron ORB; Air 27/954, 137 Squadron ORB; Air 27/1489 and 1492, 247 Squadron ORBs; Air 24/1504, 2 TAF Operations Daily Log. See also 83 Group Intelligence Summary 99, 22 September 1944 (held at Air Historical Branch).
- 99 See Air 37/1214, Allied Airborne Operations in Holland, September-October 1944, Appendix G, Air Support Notes on Operation Market. 'From 22 Sep to 8 Oct inclusive, 95 demands



for targets ... were submitted. Of these 49 were accepted.'

100 Gooderson, *Air Power at the Battlefront*, p.96.

101 Air 37/1214, *Allied Airborne Operations in Holland*, September–October 1944, Appendix G, Air Support Notes on Operation Market; Index E, Air Support and Ground-to-Air Signalling.

102 Ibid.; Cox, 'Air Power in Operation Market Garden', p.230.

103 Cox, 'Air Power in Operation Market Garden', p.230.

104 Ibid.

105 Air 27/1134, 181 Squadron Operations Record Book (ORB); Air 27/1136, 182 Squadron ORB; Air 27/954, 137 Squadron ORB; Air 27/1489 and 1492, 247 Squadron ORBs.

106 The 'up' and 'down' times recorded in the ORBs indicate a typical sortie duration of one hour; much of this would have been spent in transit.

107 Cox, 'Air Power in Operation Market Garden', p.230.

108 Air 27/1134, 181 Squadron Operations Record Book (ORB); Air 27/1136, 182 Squadron ORB; Air 27/954, 137 Squadron ORB; Air 27/1489 and 1492, 247 Squadron ORBs; Air 24/1504, 2 TAF Operations Daily Log.

109 Harvey, *Arnhem*, pp.190-93.

110 Air 37/1214, *Allied Airborne Operations in Holland*, September–October 1944, para 25, author's italics.

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