

‘IN AT THE DEEP END’: RAF HARRIER OPERATIONS DURING OPERATION CORPORATE, 1982¹

By Dr David Jordan and
Wing Commander John Shields

Biography: Dr David Jordan is one of King’s College London’s air power subject matter experts based at the UK Joint Services Command and Staff College (JSCSC), Shrivenham. While at JSCSC he has served as the Air Warfare Historian for the Higher Command and Staff Course, is the academic director for the RAF Division at JSCSC and a co-director of the RAF Centre for Air Power Studies.

Biography: Wing Commander John Shields’ formative years in the RAF focussed on air defence duties in the Tornado F3. More recently, he has held posts on the Advanced Command and Staff Course Directing Staff and as an RAF Division Course Director. He has an MA in Defence Studies from King's College London and is in the latter stages of his CAS Fellowship PhD.

Abstract: The story of the RAF's role in the Falklands Conflict is dominated by Operation Black Buck, the long-range bombing attacks against Port Stanley airport. Yet a small force of Harrier GR3s from Number 1(Fighter) Squadron played a notable part in the fighting which has tended to be obscured by discussion of the Vulcan raids and the work of the Fleet Air Arm's Sea Harrier force. This article considers the work of 1 Squadron and analyses the challenges faced by the Squadron and the effect the Harriers were able to contribute to the retaking of the Falkland Islands.

Disclaimer: The views expressed are those of the authors concerned, not necessarily the MOD.

INTRODUCTION

When the Argentine invasion of the Falkland Islands began on 2 April 1982, it did so with the Argentine *junta* firmly under the impression that the British response would, and could, be little more than words of outrage before accepting the occupation of what would become known as Las Islas Malvinas as a *fait accompli*. This represented a spectacular failure to understand one's opponent. As the threat of an Argentine invasion became ever more apparent, British planning for a military response began, even before the invasion force had come within range of the Falklands. Central to that response was a maritime task force – Task Force 317, made up of a carrier battle group (TF317.8) and amphibious group (TF317.0) to convey the land forces (TF317.1) which would evict the Argentine troops occupying the islands if diplomatic efforts to secure their unconditional removal failed. In the House of Commons on Saturday 3 April 1982, in an atmosphere which for once merited the epithet 'febrile', Prime Minister Margaret Thatcher informed fellow Members of Parliament that a task force would be despatched. The Task Force was swiftly assembled and began a three-week long journey toward the South Atlantic, headed by the United Kingdom's only two aircraft carriers, HMS *Hermes* and HMS *Invincible*. The task force was about to embark upon the sort of operation which had been specifically rejected as a plausible contingency in the 1966 Defence Review (as a contributory reason for cancelling the projected CVA01 class of aircraft carrier), in which the bulk of the air power required to defend the fleet and launch attack and reconnaissance missions had to be carrier-based. The carriers went without any airborne early-warning capability embarked (hasty efforts to convert several Sea King helicopters for the role began almost immediately, but these did not reach the Task Force before the end of the war). But they did take with them the majority of the nation's Sea Harriers, the only dedicated naval fighter aircraft available.

The performance of the Sea Harrier, colloquially known by the shorthand of 'SHAR', and its pilots during the Falklands campaign was remarkable, but thanks to the considerable publicity the type garnered for its success in air-to-air combat, the work of the aircraft from which the Sea Harrier was derived tended to be overlooked. Harrier GR3s from Number 1 (Fighter) Squadron joined the Task Force, via a deployment to Ascension Island, in early May 1982 and flew 151 missions until the end of the conflict on 14 June.² Following the cessation of hostilities, the GR3s remained in the Falklands providing air defence while the runway at Port Stanley Airport was repaired and extended to allow the eventual deployment of a force of Phantom FGR2 air defence aircraft. Yet when the Falklands conflict began, the prospect of the Harrier GR3 force being involved appeared remote to those who would ultimately find themselves deployed.

Number 1 (Fighter) Squadron, unlike the RAF's other two Harrier squadrons (Numbers 3 and 4) was based at RAF Wittering rather than in RAF Germany and conducted overseas deployments as a matter of routine as part of NATO's Allied Command Europe (ACE)

Mobile Force, the Alliance's rapid reaction force designed to provide reinforcement across the NATO area. Owing to their greater expeditionary footing, 1 Squadron's pilots were also qualified to conduct air-to-air refuelling, which meant that they were the most likely part of the RAF Harrier force to deploy.³ Even so, the distances involved in deploying to the Falklands appeared to preclude the use of the RAF Harrier force. Although 1 Squadron recognised that the Harrier's versatility meant that it might be used in any response, the apparent lack of a suitable operating location meant that such a deployment seemed remote. The Officer Commanding 1 Squadron, Wing Commander Peter Squire, recorded in his diary that the prospect of being held in reserve in Rio de Janeiro was a 'popular choice' in the discussions of squadron members as to their possible role in a response to the invasion.⁴

The Squadron was not to know that some scoping of the possibility of air attack had already been undertaken within the Ministry of Defence (MOD), and that the small size of the Sea Harrier force was a source of considerable concern. The 'SHAR' was vital to the air defence of the Task Force against enemy air attack, but there was little in the way of an effective attrition reserve. The need to preserve the Sea Harrier force was an influence upon the choice of aircraft to strike against Port Stanley Airport, and the risk of attrition to the 'SHAR' prompted thoughts of using the Harrier GR3 in the air defence role, as well as reducing the need for Sea Harriers to conduct offensive operations in support of the land forces which would be used to recapture the islands and evict the invaders.

There was good reason to assume that the Harrier GR3s might be called upon to join the Task Force to alleviate the burden faced by the Sea Harriers. Number 1 Squadron had conducted some trials and demonstration of the potential of the Harrier aboard the helicopter cruiser HMS *Blake* in the summer of 1969 and the aircraft carrier HMS *Ark Royal* in 1971, while a later deployment aboard the carrier *Hermes* had taken place in 1978, involving a Sea Harrier, British Aerospace's Harrier T4 demonstrator, and a Harrier GR3 and Harrier T4 from the RAF.⁵ Even if 1 Squadron thought that their deployment was unlikely, the planners at the MOD had other ideas, and on 8 April, the Squadron was tasked by the Assistant Chief of the Air Staff (Operations) for 'details of operational requirements needed to prepare the squadron for possible involvement in the South Atlantic.' Since its introduction to service in April 1969, the RAF Harrier was specifically designed to operate in the attack and reconnaissance roles, but they were to add another role upon deployment to the South Atlantic as attrition replacements for the anticipated Sea Harrier losses in the air defence role.

As Peter Squire's diary entries make clear, although the GR3s were seen as an attrition reserve for air defence, the idea had clearly not been fully developed as the Squadron felt compelled to press for an urgent programme to clear the GR3 for carriage of the AIM-9 Sidewinder missile.⁶ While the matter was still being considered within RAF Strike Command, Squire urged that even a photograph of a Harrier GR3 carrying a

fake AIM-9 made from cardboard tubing and painted convincingly would provide propaganda benefits.⁷

Despite what appeared to the Squadron to be a rather peculiar reluctance on the part of Strike Command to accept the need to obtain clearance for AIM-9 carriage, Squire's reflections on the efforts to prepare his Squadron for Operation CORPORATE include recognition of the considerable support required from a multitude of agencies to enable the ambitious expedition, including the MOD and its subordinate Procurement Executive, RAF Strike Command, RAF Germany and industry. Even so, there were frustrations, such as the initial ambiguous command and control construct which hindered progress, with the Squadron 'reacting to inputs from four sources, Ministry of Defence, Strike Command, 18 Group and the Navy, with 38 Group kept very much in the dark.'⁸ Squire complained that there had been 'several instances of "left hand and right hand".... such incidents have been most frustrating.'⁹ Nevertheless, the efforts to turn an expeditionary land-based attack squadron into an embarked air defence capability in a tight timeframe were impressive. Aircraft were rapidly modified to ensure that they could operate from an aircraft carrier. Modifications included, 'the fitting of shackles to the outriggers for lashing down purposes, a modification to allow active nosewheel steering and an engineering design to provide a means of aligning the aircraft's INAS (Inertial Navigation and Attack System) on a moving deck.'¹⁰ Additional modifications involved the fitment of, 'an I-Band transponder for bad weather recoveries, hardened limiters for the engine control system and an anti-corrosion treatment.'¹¹

In addition to the modifications to make the Harriers carrier-compatible, some work had to be conducted to provide the aircraft with one of the key weapons in its arsenal, namely the air-to-ground rocket projectile.

During routine operations, the Harrier GR3 force normally operated with the 68mm SNEB (*Societe Nouvelle des Etablissements Edgar Brandt*) rocket pod capability. The SNEB rockets were particularly effective against soft targets such as vehicles and enemy bunkers, and had been the primary weapon for use against tanks prior to the introduction of the BL755 Cluster Bomb. It was realised that the high energy electromagnetic emissions on board ship presented a problem for weapons safety, since the SNEB rocket had never been cleared for carrier-based operations.¹² A risk of electromagnetic interference causing an unintentional firing of rockets could not be accepted, so the RAF Harriers had to be rapidly cleared for carriage of the Royal Navy's 2-inch rocket pod.¹³ As a result, a hasty clearance to carry and fire the alternative capability was received on 26 April. Pre-deployment training was limited to one Harrier GR3 pilot deploying to Royal Naval Air Station Yeovilton to carry out a brief trial sortie only a few days prior to the Squadron's dispatch to the South Atlantic.¹⁴ However, the Royal Navy 2-Inch rockets were deemed to perform in a very similar manner to the SNEB rockets albeit with a wider, 'shotgun-like' distribution following launch.¹⁵ Despite the lack of

familiarity with the new weapons system, the Harrier GR3 force was compelled to use the Royal Navy 2-Inch rockets due to a shortage of cluster bombs.¹⁶ Although the Royal Navy 2-Inch rockets gave the Harrier GR3 force a degree of stand-off from the target, the weapon had a smaller footprint than the BL755 cluster bomb and suffered from a significant number of misfires.¹⁷ Nevertheless, as the sole user of the weapon during the Conflict, the Harrier GR3 force would go on to employ 52 pods of Royal Navy 2-Inch rockets.¹⁸

Flying training encompassed ski-jump take-off training at Royal Naval Air Station Yeovilton between 14 and 23 April. Dissimilar Air Combat Training (DACT) was conducted against the RAF's Lightning fighter force and Hawker Hunters normally used for training by Tactical Weapons Units, boosted by the co-operation of the French government, which willingly allowed *Armée de l'Air* Mirage IIIs and *Aéronavale* Super Etendards to give Harrier and Sea Harrier pilots DACT opportunities for an insight into the capabilities of the Argentine aircraft they would face in the coming weeks over the South Atlantic. Moreover, an end-to-end test of the GR3's new air-to-air capability proved to be a success when five of the six AIM-9G Sidewinders were employed effectively at the Aberporth weapons range, off the west coast of Wales, on 30 April.¹⁹ However, the control of the air role was not the sole focus of the Squadron's work-up. Ultra-Low Level (ULL) flying down to 100 feet was conducted. Moreover, 28 cluster bomb units were also dropped against a splash target. Further expansion of the Harrier GR3 capability was also reviewed. The understanding that the Argentine radars around Port Stanley Airport represented a threat to Task Force aircraft saw options to introduce an anti-radiation missile considered. The possible value of using precision-guided munitions against high-value targets and possibly against enemy troop positions saw the beginning of the development of a precision attack capability. Additionally, measures to provide the aircraft with a self-protection capability against enemy air and ground threats were also progressed. The latter capabilities came online as Operation CORPORATE progressed but were but not available in time to support the initial GR3 deployment.

On 19 April, the Squadron received its initial deployment order. They were tasked with deploying nine aircraft; six aircraft would join the Task Force with the three remaining Harriers to be retained at Ascension Island for air defence duties. Over the period 2-6 May 1982, the nine aircraft deployed from their home base at RAF Wittering to Ascension Island utilising a combination of air-to-air refuelling and refuelling stops at RAF St Mawgan in Cornwall and Banjul in Gambia. Planning assumptions suggested that after 21 days of operations the Sea Harrier force could be as low as 14 aircraft. This assumption was based upon the premise that only the aircraft (and possibly the pilot) would need to be replaced, rather than the total capability. This meant that 1 (Fighter) Squadron deployed with a skeleton engineering staff of only eighteen personnel. Although 38 engineers had been initially prepared for the deployment, even this figure was well short of the manning levels required to support the aircraft

during normal operations – the post-conflict force of ten Harrier GR3s based in the Falkland Islands would require 200 support staff to guarantee maximum availability. Nevertheless, due to a command edict to limit sleeping quarters to above the water line, living space was at a premium on board HMS Hermes throughout the conflict. Not only did this constrain the numbers of RAF personnel who could be embarked, but the RAF personnel were also forced to 'sleep in hammocks and camp beds erected in passageways where some routine movement continued throughout the quiet hours.'²⁰ The net result was to be additional pressure on the taut Sea Harrier engineering staff to support a similar, but different, aircraft type which was dedicated to fulfilling what was a secondary role for the 'SHAR'.

On 1 May, 1 Squadron's Harrier GR3s were still located at their home base of RAF Wittering. However, their groundcrew would deploy that day to Ascension Island via RAF Brize Norton with the Harriers starting their deployment to Ascension Island the following day. Following the arrival of MV Atlantic Conveyor at Ascension Island on 5 May, the Harriers were flown onto the converted ship on 6 May in calm conditions. Nevertheless, Wing Commander Squire noted that, 'most pilots approached their first VL (vertical landing) onto a deck with some apprehension.' The GR3s were not the sole occupants of the MV Atlantic Conveyor; they would be joined on the journey south by the eight Sea Harriers of the newly-commissioned 809 Naval Air Squadron, as well as



1 Squadron pilots on the deck of MV Atlantic Conveyor during the voyage to the South Atlantic. Air Chief Marshal (then Wing Commander) Peter Squire is pictured standing second from the right. To the left of him are: Squadron Leader Pete Harris, Flight Lieutenants Jeff Glover, Mark Hart, John Rochfort and Tony Harper. To the right of him is Squadron Leader Bob Iveson. Sitting in front is Squadron Leader Jerry Pook.



The Officer Commanding 1 Squadron, Air Chief Marshal (then Wing Commander) Peter Squire, takes off from MV Atlantic Conveyor on 18 May 1982 to head for HMS Hermes.

four Chinook and six Wessex helicopters. After a 12-day transit, four of the six Harriers were flown from MV Atlantic Conveyor to HMS *Hermes* on 18 May, a mere three days prior to the British landings on the Falklands in San Carlos Bay (under the codename Operation SUTTON), with pilots who were unfamiliar with aircraft carrier operations. The remaining GR3s joined their compatriots over the following two days. Although the GR3s had been unable to participate in the first phase of the air campaign (defending the Task Force and shaping operations), they were to make up for this immediately.

On 21 May 1982, British forces landed at San Carlos Bay. This marked the start of an intense period of activity for 1 Squadron. On the very first day, Squire's aircraft had a fault with the undercarriage, and his wingman, Flight Lieutenant Jeff Glover, continued their scheduled mission alone. In his memoir of the campaign, Squadron Leader Jerry Pook (commander of 1 Squadron's 'A' Flight) records that he was astounded that the relatively inexperienced Glover had continued as 'a singleton', and Squire later noted ruefully that the decision not to abort the mission completely was a 'mistake'.²¹ Pressing on, Glover was tasked by HMS *Antrim* with an armed reconnaissance in the vicinity of Port Howard. His first pass over the area showed no sign of enemy activity, and, in agreement with *Antrim*, he made a second run from a different direction. Unfortunately for Glover, there were Argentine forces in the area, and they engaged him. His Harrier was hit by a Blowpipe surface to air missile (SAM) and he was forced to eject at low level and high



Harrier GR3 aircraft of 1 Squadron parked alongside Royal Navy Sea Harriers and a Sea King helicopter on the flight deck of HMS Hermes on 19 May 1982.

speed from an aircraft which was rolling uncontrollably. He survived, but with serious shoulder injuries.²² This overshadowed the other sorties conducted that day, which had seen Pook and his wingman Mark Hare attack an Argentine helicopter landing zone (LZ). Hare's cluster bombs refused to release from the aircraft because of an electrical fault,

while Pook's first attack run had seen his weapons land just beyond the Chinook he had targeted. The Harriers then conducted several strafing passes, with Hare destroying the Chinook while he and Pook each hit at least one of two Puma helicopters sitting on the LZ. The final helicopter, a Bell UH-1 'Huey', was difficult to see, and it took several passes to destroy it, during the course of which Hare's aircraft was damaged by ground fire. Pook was not impressed to receive a lecture from Captain Lin Middleton, the Captain of HMS *Hermes*, about the folly of making multiple passes, or the input from Admiral Woodward, who informed him that he had 'learned a cheap lesson', a comment Pook thought inappropriate given the Admiral's lack of knowledge about air operations.²³ This highlighted a significant problem for the Harrier, namely getting weapons onto targets that were difficult to see, even for aircrew familiar with the art of ground attack.

Unlike the multi-role Sea Harrier, the Harrier GR3 was a dedicated ground-attack and reconnaissance platform. As part of its routine Cold War tasking, the GR3 was employed, 'in the classic offensive air support role providing close air support, battlefield air interdiction and tactical air reconnaissance for the relevant army units.'²⁴ Consequently, had the Third World War begun on the Central Front in Europe, the Harrier GR3s would have attacked 'second echelon Warsaw Pact armoured formations and mobile first echelon equipment where a rapid response for close air support was needed.'²⁵ This was a far more daunting proposition than the previous sentence might suggest. In order to improve the aircraft's capability, the Harrier GR1 had been upgraded to the GR3 variant, firstly through the provision of a more powerful engine, followed soon afterwards by the introduction of a laser ranging marked target seeker (LRMTS) that provided accurate ranging between the aircraft and its target.²⁶ Nevertheless, without radar or other means of on-board target acquisition, Harrier GR3 pilots were still reliant on locating and identifying those targets visually unless aided by a forward air controller using a laser marker to provide a cue for the LRMTS. Visual identification was a significant challenge for a single-seat aircraft operating in a benign environment, never mind one where heavy ground fire was being directed at the aircraft. During the Falklands Conflict, the challenge was even greater as the pilots were operating in contested airspace, at low level, in poor weather and high speed against concealed and camouflaged targets. As a result, pilots were frequently unable to detect the target on their first pass. The lack of on board sensors also meant that the Harrier GR3 had no night or all-weather attack capability. This drove the frequent need for multiple attack passes against ground targets, and the apparent inability of Captain Middleton to understand this irritated the RAF pilots considerably.²⁷ As will be explored below, though, as the war went on the question of whether Middleton might have had a point, and whether this 'press-on-to-achieve-results' approach was appropriate in all circumstances, gained increasing currency.

Over the next few days, the GR3s conducted a series of routine operations, including standing deck alert to provide Close Air Support, armed reconnaissance and attacks

against the airfield at Pebble Island (although many of the aircraft at that location had already been destroyed or badly damaged by a raid carried out by Special Air Service troops on the night of 14-15 May 1982) and an airstrip at Chatres. In the former mission, the Harrier bearing the identification number 14 had its third weapons hang-up as a result of another electrical fault, forcing the pilot to use the emergency jettison procedure to get his bombs (and his underwing fuel tanks) released – they missed the target.²⁸ The unreliability of one of the small GR3 force, without the engineering support which would normally have been available to rectify this annoying fault, was highlighted by this frustrating problem. This was then followed by attacks against Argentine forces at Port Stanley as part of the wider campaign to impede operations at that location. Pook noted with some disdain that a request to fly a pre-strike reconnaissance sortie to improve planning for the attack was grudgingly accepted before the decision was reversed by Captain Middleton.²⁹ Although Pook's book was written with some hindsight (the draft manuscript was completed years before the book was published), Sir Peter Squire's contemporaneous diary also hints that there was a growing realisation that the level of cooperation between the RAF Harriers and the staff aboard *Hermes* was far from smooth, in no small part thanks to interventions from the captain, who was himself a former Fleet Air Arm pilot with decided views both upon how the aircraft on his ship would operate and the presence of an RAF contingent aboard. This frustration extended to an initial belief that the GR3 attacks against Stanley airport should be conducted from low level using retarded bombs, whereas the pilots thought that loft (or 'toss') attacks would be better, albeit the more sophisticated avionics aboard the Sea Harrier meant that accuracy would be greatly improved if a joint effort were mounted, with the Sea Harrier navigating to the target and releasing its more-accurately aimed bombs as a cue for the GR3s to follow suit.³⁰ There was little surprise at the lack of success with retarded bombs, the 1 Squadron diary recording that this was 'as expected'.³¹

On 27-28 May 1982, the Harriers made perhaps their most spectacular contribution to the war in support of the assault by 2nd Battalion, the Parachute Regiment (2 PARA) to capture the settlements of Goose Green and Darwin. 2 PARA was significantly outnumbered by the Argentine defenders, and the battle proved extremely difficult. 1 Squadron provided close air support on 27 May, losing Squadron Leader Bob Iveson's aircraft to ground fire after he sought to reattack a target.

2 PARA's advance became stuck on the morning of 28 May, and the Commanding Officer of 2 PARA, Lieutenant-Colonel Herbert 'H' Jones decided that it was necessary for his command group to make a physical intervention in the battle. Charging up a gully towards Argentine positions, three men were killed almost at the outset, and Jones was mortally wounded as he attempted to clear an enemy trench. The battalion second-in-command, Major Chris Keeble, took over, and, over the course of the next few hours, 2 PARA gained the upper hand after hard fighting. The Argentine defenders had been supported by a 35mm anti-aircraft gun battery, which remained a formidable obstacle to

the attacking troops, so three GR3s were tasked to attack it. Inclement weather initially precluded an attack on the gun, but a break in the clouds allowed Captain Kevin Arnold, a Forward Air Controller from 148 Battery, Royal Artillery, to direct the aircraft to the gun, which they proceeded to attack with cluster bombs. This had a salutary effect on the defenders, as a number of key figures noted after the war.

Years after the event, at an RAF Historical Society seminar, Major General Julian Thompson, commander of 3 Commando Brigade during the conflict, responded to a presentation by Peter Squire (by then Chief of the Air Staff (CAS)):

In his presentation, [Sir Peter] said that his squadron helped to turn the tide at Goose Green. I can tell him that it did turn the tide. 2 PARA were stuck on a forward slope, in daylight, being engaged by 35mm AAA [Anti-Aircraft Artillery] at 2,000 metres range, something to which they had absolutely no answer. Suddenly, like cavalry to the rescue out of the sky, came three Harriers which promptly took out those guns and turned the tide of the battle. There is a tale behind that too. We had previously been supported by CAS's squadron on exercise in Norway and we had a very high opinion of what they could do. While we were on our way south, I turned to my primary FAC, who was an RAF Phantom back-seater on a ground tour, and told him that I needed No 1 Sqn. He said that I would never get them. I asked why and he replied that they simply couldn't get there. Thank God you did Peter, because you really did pull the fat out of the fire for us...³²

Major Tony Rice, a Royal Artillery officer attached to 2 PARA, saw the attack from relatively close quarters, and later recalled:

The cluster bombs...were the most devastating thing I had ever seen. The ground boiled [sic] and there was a thunderous roar, then total silence covered the battlefield. The stuffing was completely knocked out of the Argentines...³³

The psychological effect of the attack also impressed the acting CO of 2 PARA, Chris Keeble, who observed that

The devastating violence created by the Harriers who attacked the outskirts of the settlement at last light clinched it. It was at that moment it seemed to me that the will of the defence began to break...³⁴

More pithily, one of 2 PARA's officers remarked 'they frightened *me* ****less, never mind the Argentines'.³⁵

Keeble exploited this effect in his negotiations with the Argentine garrison, promising that there would be more air attacks in addition to the obviously ferocious and determined

efforts of his men. The Argentines concluded that enough was enough, and surrendered, giving the British their first major land victory of the war.

The Battle of Goose Green demonstrated the efficacy of the Harrier GR3 in support of ground troops, but the first week of operations had seen the loss of aircraft and damage inflicted upon others. Unlike the Sea Harrier force, more Harrier GR3s could be sent to the South Atlantic from the much larger RAF inventory to sustain this demonstrably valuable attack capability. On 1 June, two replacement Harrier GR3s flew an eight-and-a-half-hour mission from Ascension Island to HMS *Hermes*, supported by Victor air-to-air refuelling aircraft. A similar mission was also flown a week later. Remarkably, and despite the success at Goose Green and the value of dedicated attack aircraft, Captain Middleton believed that the plan, codenamed Operation BOWSPRIT, was nothing more than a publicity stunt by the RAF.³⁶ Despite Middleton's reservations regarding the risk associated with the long over-sea transit, the missions went ahead. So what benefit did the 'RAF publicity stunt' bring to the British campaign?

The four new aircraft not only allowed the Harrier GR3 output to be increased but also introduced a number of new capabilities to the campaign including: the use of laser-guided bombs, following the successful completion of Trial *Puritan*; an ALE-40 chaff and flare dispenser; and an improvised self-protection radar jammer.³⁷ Also, as part of Trial *Athene*, one aircraft was modified to use the Shrike anti-radiation missile, the same weapon that had been used by RAF Vulcan bombers operating out of Ascension Island on possibly the longest-range Suppression of Enemy Air Defence sorties in history.³⁸ The modified aircraft arrived on board HMS *Hermes* on 8 June.³⁹ The introduction of the Harrier's Shrike capability was hampered by a lack of missiles, as the original weapons were not offloaded from an RAF VC10 aircraft at Ascension Island as intended as the result of an oversight. The weapons remained aboard the VC10 and were 'subsequently found by the Uruguayan authorities and impounded' following inspection of the aircraft which had subsequently been tasked with aeromedical duties.⁴⁰ Nevertheless, eight missiles, four launchers and associated equipment were parachuted to the Task Force on 10 June by a Hercules on a 25-hour re-supply mission from Ascension Island.⁴¹ As a result, the Harrier force was an AGM-45A Shrike-capable platform from 13 June, although the Argentine surrender the next day meant that the weapons were never used. The Harrier GR3, through reinforcements and a series of upgrades, was able to deliver a sustainable and enhanced attack capability throughout the remainder of the campaign.

These enhancements were completed with the introduction of a precision capability, and might have been even greater had 1 Squadron not experienced considerable frustration with the effort to make use of precision-guided munitions (PGMs). The possibility of conducting more precise attacks on Argentine positions had excited some interest, even though the 1,000lb Paveway laser-guided bomb was not an extant part of the Harrier GR3's inventory. The weapon was rapidly introduced as an urgent

operational requirement. Paveway modification kits were air-dropped by Hercules flying from Ascension Island to the Task Force on 24 May 1982, and the weapons were being employed against Argentine targets six days later.⁴² However, the lack of understanding and experience of the new weapon would soon become evident. For example, confusion regarding how to effectively deliver the required laser reflection from the designated target led to the initial weapons missing their target.⁴³ Nevertheless, once procedures had been refined by both air and ground parties, the weapon was delivering the required effect on a more consistent basis during the latter stages of the land campaign.

1 Squadron dropped eleven laser-guided bombs during the conflict, of which four were guided successfully.⁴⁴ The sighting of white flags over Port Stanley led to the cancellation of another PGM attack on 14 June 1982. The Harriers returned to *Hermes*, their part in the war complete.



1 Squadron Harrier GR3 taking off from the airfield at Port Stanley, destroyed Argentinian Air Force Pucara aircraft in the background.

The end of the war coincided with the arrival in theatre of MV *Contender Bezant* with a consignment of a further four Harrier GR3s.⁴⁵ In parallel, 3 Squadron was identified as the follow-on replacement for 1 Squadron and, after some uncertainty, eventually commenced their deployment to the South Atlantic in the immediate post-conflict phase on 30 June with eight pilots and 36 engineers.⁴⁶

ASSESSMENT

History has not been entirely kind to the RAF's Harrier operations in 1982, since the efforts of the Sea Harrier force, present from the start of the fighting until its conclusion, have overshadowed the work of the small 1 Squadron element aboard HMS *Hermes*. Yet the Harrier GR3s added to the overall capability of the Task Force, even if there were some significant problems in the way in which they were employed. Much of this lay in long-standing inter-Service rivalry, which appears to have had a regrettable influence.

The Harrier GR3 pilots were exasperated that their attack and reconnaissance capabilities were neither understood nor exploited, and that their advice apparently went mostly

unheeded.⁴⁷ In addition to the lack of understanding across the embarked joint air wing, there were also issues regarding the command and control of the embarked Harriers. The designated Air Commander for Operation CORPORATE was Air Vice-Marshal Sir John Curtiss, Air Officer Commanding 18 Group. He remained in the United Kingdom for the majority of the campaign, although he did once venture as far south as Ascension Island. In the context of the operation, with 18 Group's vital commitment to maritime operations closer to home, this is understandable. However, this had the deleterious effect for 1 Squadron that the operational command of the Harrier GR3s was delegated to Woodward as Carrier Task Group commander with operational control allocated to the Captain of HMS *Hermes*.⁴⁸ Woodward, a submariner, took the entirely reasonable decision that, as Middleton was an aviator, he was best placed to use the air assets. For all Middleton's undoubted success as a naval officer – as tributes from former subordinates after his death in 2013 demonstrated – his handling of the air effort in Operation CORPORATE was less sure-footed. In his post-conflict report, Peter Squire observed that, 'in [HMS] *Hermes*, the Captain himself exercised a very tight control on flying operations and the Squadrons' programme was totally dictated by the ship.'⁴⁹ The RAF Liaison Officer to Lieutenant General Jeremy Moore (the commander of the UK's land forces in the Falklands), also commented in his post-conflict analysis that tasking of sorties 'differed from the RAF/NATO system by depending more on the intuitive wishes of the Admiral and the Captain.'⁵⁰ Due to Middleton's command style, once a decision was made it was difficult to change it. Pook highlights the implications of such intransigence by suggesting that, 'several times we found ourselves attacking targets with unsuitable weapons which were wrongly fused', a result of direction from Middleton.⁵¹ Such complaints were not just limited to the junior Service: much to Lieutenant Commander 'Sharkey' Ward's vexation, the Sea Harrier pilots of 801 Naval Air Squadron also found themselves affected by Middleton's robust, tactically-focused leadership style, even though they were aboard HMS *Invincible*, under the command of Captain JJ Black.⁵²

Considering how this difficulty might be rectified in future, the Central Tactics and Trials Organisation's report into the conflict suggested that 'specialist advisors with adequate authority should be deployed with RAF assets, if operational control is to be exercised by another Service, to ensure effective operational employment.'⁵³

In addition to problems with tasking, the RAF Harriers faced other challenges. Operating in the low-level, high-speed environment without sensors, the Harrier GR3s found it difficult to detect and strike their often-concealed targets on their first pass. Forced to reattack the target – sometimes on multiple occasions – to be able to employ their weapons the Harrier GR3s were increasingly exposed to enemy ground fire. Bob Iveson and Jeff Glover both fell prey to ground fire making more than a single pass, although both survived the ordeal. The Harrier GR3 re-attack tactic became controversial both within the Squadron and beyond. Pook was criticised by his wingman on 26 May following multiple passes

over the same target in the Mount Kent area.⁵⁴ Commodore Mike Clapp, Commander of the Amphibious Task Force, himself an experienced naval aviator, suggested that, ‘second passes over enemy positions were inviting disaster.’⁵⁵ In keeping with his robust account of the Conflict, Pook dissents with this perspective, arguing that risks had to be taken to obtain results.⁵⁶ The culture evident amongst the Harrier community was that achieving the task was important, but the risks that this entailed were problematic; reaching a consensus on the ‘correct’ approach is almost impossible – particularly from the comfort of an office chair 36 years after the war – but the evidence suggests that both arguments for and against multiple passes had merit, with context being key. Operating in the low-level and high-threat environment was a high-risk proposition. As a result, the British tolerated the risks and accepted that losses were inevitable, a high-risk strategy which was pursued throughout the campaign.

A more prudent method might have been to use British combat air assets in a coordinated, pre-emptive way that exploited air power’s strengths and allowed the land battle to be shaped to the advantage of the British. Noting that the vast majority of land battles were being fought at night, the Harrier GR3 was at an added disadvantage, as it had no night attack capability.⁵⁷ In order to maximise its utility, therefore, the Harrier GR3 needed pre-emptive reconnaissance and sufficient time during daylight to prosecute Argentine fielded forces. This was rarely done thanks to the sub-optimal tasking of the aircraft. As a result, the utility of British attack missions was reduced. Furthermore, ascertaining what had been achieved was also problematic thanks to the lack of battle damage assessment conducted. The point was reiterated to the then Chief of the Air Staff by Harrier GR3 pilots who flew during the conflict when they observed that ‘weapon effects were difficult to judge.’⁵⁸ With limited timely feedback from British ground forces and a lack of on-board sensors to record the effects of their attacks, the Harriers were unable to assure themselves that their attacks had achieved their mission aims. Demonstrating that the adage ‘time spent on reconnaissance is seldom wasted’, the lack of pre-emptive and post-strike reconnaissance meant that finite resources were used in an inefficient, repetitive and high-risk manner.

The relatively limited exploitation of the Harrier GR3’s capabilities during the conflict (compared to what it might have achieved) is reflected in the Number 38 Group post-conflict report, which evaluated all the difficulties faced by the small Harrier contingent before glumly concluding, ‘it is remarkable that No [Number] 1 Squadron achieved any success at all.’⁵⁹

Yet this is too pessimistic. The Harriers made a significant outcome to the successful conclusion of the Battle of Goose Green, contributed to the harassment of Argentine forces around Port Stanley Airport, and, as Sir Peter Squire later reflected, demonstrated – when tasked – the importance of tactical reconnaissance. Once the problems with

designating Laser-Guided Bombs (LGBs) were understood, four bombs were delivered with considerable effect, presaging the RAF's slow move towards the adoption of a full precision attack capability. It is regrettable that the effectiveness of LGBs was not fully appreciated in all quarters after the war, and it may be that the initial failures to guide the weapons contributed to this. They also, albeit as a result of negative experience, demonstrated the importance of having sufficient engineering staff to support a deployment, since despite the Herculean efforts of the maintainers aboard HMS *Hermes*, the presence of a much expanded fixed-wing force carrying out operations with which the carrier's crew were not fully familiar created problems that might otherwise have been avoided. The importance of coordinating air operations was demonstrated on numerous occasions, and the move towards ensuring that proper joint planning under a dedicated joint air component commander was hastened as a result. Speculation as to what might have been achieved with an air component commander and staff embedded in the Task Force must remain just that, but it seems probable that the outcome would have been greater success in the way in which air power was used. Perhaps the greatest significance of 1 Squadron's work lay in demonstrating once again the potential effects of properly-integrated air, sea and land power and the flexibility and adaptability that air power offers.

EPILOGUE

The editorial board of *RAF Air Power Review* had hoped that Air Chief Marshal Sir Peter Squire would offer his thoughts on his Squadron's contribution to the Falklands campaign, rather than publish the above article. Sadly, Sir Peter died on 19 February 2018 before he was able to make his contribution. Had he done so, though, it is entirely probable that he would have modestly omitted to mention that he was awarded the Distinguished Flying Cross for his efforts in 1982, or that he narrowly avoided being wounded by ground fire when an Argentine round entered his cockpit, or to have referred to a bone-jarring crash at a forward landing strip when his aircraft's engine failed at a critical moment; nor would he have staked out his place in history as the first man to deliver a laser-guided bomb in combat from an RAF aircraft. The authors respectfully dedicate this piece to his memory.

NOTES

¹ The title is derived from Chapter 1 of Sqn Ldr Jerry Pook, *RAF Harrier Ground Attack Falklands* (Barnsley: Pen & Sword, 2007).

² The National Archives [Hereafter TNA], DEFE 67/124 'Operation Corporate: Harrier Aircraft Operations', 5.

³ Air Chief Marshal Sir Peter Squire, 'Harrier Operations', *RAF Historical Society Journal - Seminar: The Falklands Campaign (Volume 30 [2003])*, 102. [Hereafter 'RAFHS Journal - Falklands'].

⁴ Sir Peter Squire, 'The Number 1 (Fighter) Squadron Operation Corporate Diary 1982', entry for 2 April. Previously hosted at <http://www.raf.mod.uk/history/HarrierDiary1.cfm>

(link obsolete after RAF website upgrade 2018; accessed 20 December 2017) Hereafter 'Squire Diary'.

⁵ See Imperial War Museum [IWM], 'Harrier Trials on HMS *Blake*', 1969-08, Catalogue number ADM1908; IWM, 'Harrier Trials on HMS *Ark Royal*', 1971-05, Catalogue number ADM 4460 and IWM, 'Harrier Trials on HMS *Hermes*', 1978, Catalogue Number ADM4797.

⁶ Ibid, diary entries for 8,16 and 17 April 1982.

⁷ Ibid, diary entry for 17 April 1982.

⁸ TNA, AIR 27/3525; No 1 (Fighter) Squadron (Falklands Conflict), 'Summary of Events April 1982, CO's Comments.

⁹ Ibid.

¹⁰ Bob Marston, *Harrier Boys: Volume One – Cold War Through the Falklands, 1969-1990* (London: Grub Street, 2015), 83.

¹¹ Ibid

¹² R.A. Burden et al. *Falklands – The Air War*. (London: Arms and Armour Press, 1986), 372.

¹³ Pook, Harrier Ground Attack, 7.

¹⁴ Squire. "Harrier goes to War." <http://www.raf.mod.uk/history/TheHarrierGoestoWar.cfm> (accessed 8 January 2016).

¹⁵ Pook, Harrier Ground Attack, 7.

¹⁶ Ibid., 148.

¹⁷ TNA, DEFE 58/282. Operation *Corporate* (Falklands Conflict): Air Commander's Report; Report of Proceedings, October 1982.

¹⁸ TNA, AIR 27/3525. No 1 (Fighter) Squadron (Falklands Conflict), Summary of Events, June 1982.

¹⁹ Ibid; Summary of Events, April 1982, CO's Comments.

²⁰ Marston, *Harrier Boys*, 89.

²¹ Jerry Pook., *RAF Harrier Ground Attack – Falklands*. (Barnsley: Pen and Sword, 2007), 61; Squire Diary, 21 May 1982.

²² Ibid, 171. Jeff Glover recovered from his injuries and later flew a tour with the RAF Aerobatic Team.

²³ Ibid, 59-61.

²⁴ Group Captain Jock Heron, 'The Cold War Concepts of Operation for the RAF Harrier Force', *RAF Historical Society. "Journal 35A – The RAF Harrier Story*. [Hereafter *RAF Historical Society – Harrier*], 55 <http://www.rafmuseum.org.uk/documents/Research/RAF-Historical-Society-Journals/Journal-35A-Seminar-the-RAF-Harrier-Story.pdf> (accessed 17 January 2016).

²⁵ Ibid,58.

²⁶ Many accounts of the Harrier assume that the addition of the LMRTS brought about the change of designation from GR1 to GR3, but it was in fact the installation of the Rolls Royce Pegasus Mk 103 which led to a new designation for the aircraft.

²⁷ Pook, *Harrier Ground Attack*, 60-61.

²⁸ Ibid, 75-78. The offending aircraft had been flown by Mark Hare during the attack on

the helicopter LZ, and then by Sqn Ldr Pete Harris against Goose Green the following day, where the same electrical fault precluded weapons release.

²⁹ Pook, *Harrier Ground Attack*, 78.

³⁰ *Ibid*, 83, 85.

³¹ TNA, AIR 27/3535, No. 1 (Fighter) Squadron, Summary of Events May 1982, 6.

³² *RAFHS Journal – Falklands*, 115.

³³ John Wilsey, *H Jones, VC: The Life and Death of an Unusual Hero* (London: Hutchinson, 2002), 284-285.

³⁴ Max Arthur, *Above All, Courage: First Hand Accounts from the Falklands Front Line* (London: Sphere Books, 1985), 192.

³⁵ Spencer Fitz-Gibbon, *Not Mentioned in Despatches... The History and Mythology of the Battle of Goose Green* (Cambridge: Lutterworth Press, 1995), 174.

³⁶ Marston, *Harrier Boys*, 95.

³⁷ TNA, AIR 24/3299, HQ Strike Command (Falklands Conflict); Marston, *Harrier Boys*, 97. The jammer, known as 'Blue Eric', was housed within one of the two Harrier under-fuselage gun pods. Jeff Ethell and Alfred Price, *Air War South Atlantic*, (London: Sidgwick and Jackson, 1983), 154.

³⁸ TNA, AIR 24/3299, HQ Strike Command (Falklands Conflict); TNA, AIR 27/3525. No 1 (Fighter) Squadron (Falklands Conflict); Black Buck 5 and 6 were the two Shrike-armed Vulcan missions conducted on 31 May and 3 June respectively; Burden et al, *Falklands Air War*, 365-7.

³⁹ TNA, AIR 27/3525, No 1 (Fighter) Squadron (Falklands Conflict), Summary of Events, June 1982, 2.

⁴⁰ TNA, AIR 24/3299, Headquarters Strike Command Operations Record, June 1982.

⁴¹ *Ibid*; Burden et al, *Falklands Air War*, 408.

⁴² Squire, "Harrier goes to War." <http://www.raf.mod.uk/history/TheHarrierGoestoWar.cfm> (accessed 8 January 2016); TNA, AIR 27/3525, No 1 (Fighter) Squadron (Falklands Conflict), 8.

⁴³ Pook, *Harrier Ground Attack*, 196.

⁴⁴ TNA, AIR 27/3525, No 1 (Fighter) Squadron (Falklands Conflict), Summary of Events, June 1982, 4.

⁴⁵ Burden et al, *Falklands Air War*, 382-5.

⁴⁶ See TNA, AIR 27/3527. No 3 (Fighter) Squadron Operations Record Book, January 1981-December 1982.

⁴⁷ TNA, AIR 27/3525, No 1 (Fighter) Squadron (Falklands Conflict), Summary of Events, June 1982, 3; also see Pook, *Harrier Ground Attack*, 179-180.

⁴⁸ TNA, AIR 24/3299, Headquarters Strike Command Operations Record, June 1982.

⁴⁹ TNA, AIR 20/13126, Operation *Corporate* (Falklands Conflict): reports and articles; Harrier aircraft operations.

⁵⁰ *Ibid*.

⁵¹ Pook, *Harrier Ground Attack*, 81.

⁵² Ward, *Sea Harrier over the Falklands*, 250.

⁵³ Air Historical Branch, CTTO/26/2/Ops. CTTO Report on Tactical Lessons Learned from Operation *Corporate*.

⁵⁴ Pook, *Harrier Ground Attack*, 105.

⁵⁵ Mike Clapp and Ewan Southby-Tailyour. *Amphibious Assault Falklands*. (London: Leo Cooper, 1996), 143.

⁵⁶ Pook, *Harrier Ground Attack*, 105.

⁵⁷ TNA, AIR 24/3299, Headquarters Strike Command Operations Record, June 1982.

⁵⁸ TNA, AIR 20/13191, Operation *Corporate* (Falklands Conflict): report and debriefs.

⁵⁹ TNA, AIR 20/13126, Operation *Corporate* (Falklands Conflict): reports and articles; Harrier aircraft operations.

This article has been republished online with Open Access.

Ministry of Defence © Crown Copyright 2023. The full printed text of this article is licensed under the Open Government Licence v3.0. To view this licence, visit <https://www.nationalarchives.gov.uk/doc/open-government-licence/>. Where we have identified any third-party copyright information or otherwise reserved rights, you will need to obtain permission from the copyright holders concerned. For all other imagery and graphics in this article, or for any other enquires regarding this publication, please contact: Director of Defence Studies (RAF), Cormorant Building (Room 119), Shrivenham, Swindon, Wiltshire SN6 8LA.

 **ROYAL
AIR FORCE**
**Centre for Air and
Space Power Studies**

OGL