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Cover picture: Three unidentified Australian soldiers with their Vickers machine gun at an outpost of the 24th Machine Gun Company, near Vendelles, the night before the attack which culminated in the capture of the Hindenburg Outpost Line in front of Le Verguier, by the 4th Australian Infantry Brigade. 17 September 1918. Australian War Memorial Image E03268 

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EDITORIAL*

We are very pleased to announce the award of the second annual Sir Michael Howard Prize for the best article published in the journal in each year. Dr Iain Farquharson was presented with his award and £250 for his article "'The Staff College candidates are not right yet": The Importance of Nomination to British Army Staff College Entry, 1919-1939' (Volume 8, Issue 1) by Dr Halik Kochanski at the British Commission for Military History AGM on 4 March. The judging panel were greatly impressed by Iain's analysis of the way candidates for the Staff College were selected between the wars and his demonstration that – possibly counter-intuitively – those nominated by their regiments or units actually did better than those chosen by competitive examination.

Although this issue is one of our standard volumes – produced as a result of submissions which had come to us rather than being sought, and without guest editors – it bears some of the hallmarks of a special issue tied together by a theme. As we reviewed the articles we had ready to publish, we realised that the pieces in this issue are all linked to some extent by the technical and operational aspects of war.

The issue examines a range of issues which can be covered by the terms 'technical' and 'operational', including: Edward Wawrzynczak and Jane Wickenden on hospital ships; articles by Brendan Hogan and Greg O'Reilly which cover learning, machine gun fire and gas; and the David Brown and Brenton Brooks article on the use of tanks. Simon Blount's article on Austrian mountain troops considers the roles played by such soldiers at Narvik in 1940, while also touching on wider issues around memory. The opening article on Bosworth by Jack Shaw and Peter Shaw is a valuable example of detective work on the location of a battle. These articles offer ample evidence of there being much vigour in new work on these types of military history by authors from a wide variety of backgrounds.

As editors, we remain concerned, and feel duty-bound to flag, that this volume only has work by one woman as a lead author. To some extent this reflects the pieces which come to us, but knowing the field as we do, we remain committed to highlighting the really innovative scholarship which is being done by female researchers and we will continue to work hard to ensure that this is better represented in future issues.

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Bosworth Field: a battlefield rediscovered?

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ABSTRACT
The Bosworth Project concluded that the deciding battle in The Wars of the Roses was fought entirely at Fenn Lane and the site proposed is the only feasible candidate. However, the authors suggest that the narrative provided overlooks or downplays key aspects of contemporaneous accounts to support those conclusions. It is instead proposed that the primary site of battle was in a nearby location and an alternative narrative is offered that matches more of, and better accommodates, the contemporary accounts of battle events.

Introduction

Between 2005 and 2010 The Bosworth Project was undertaken by The Battlefields Trust in an attempt to find the true site of the Battle of Bosworth Field.[1] Detailed field investigations were conducted around Sutton Cheney, Dadlington, Shenton, and Stoke Golding. The project's findings were ultimately reported in *Bosworth 1485: A Battlefield Rediscovered*.[2]

A Battlefield Rediscovered?

The Bosworth Project aimed to draw together three separate strands of research: original accounts, historic terrain, and battle archaeology. However, the team's search of accounts for 'Redemore' (the original name for the battle) and 'Sandeford' (the site of King Richard's death) was inconclusive: reporting that '[F]urther work needs to determine the precise location, extent, and character of Redemore, and its relationship with the arable fields of the surrounding villages.'[3]

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*Jack Shaw and Peter Shaw are independent scholars based in Australia who developed an interest in the location of the Battle of Bosworth while previously living in the area.
DOI: 10.25602/GOLD.bjmh.v9i1.1685
[1]The Bosworth Battlefield Project (hereinafter Bosworth Project), https://archaeologydataservice.ac.uk/archives/view/bosworth_hlf_2011/ Accessed 18 September 2022.
[2]Glenn Foard and Anne Curry, *Bosworth 1485: A Battlefield Rediscovered,* (Oxford: Oxbow Books, 2013). Page references in this article are to the second (2018) edition.
[3]Bosworth Project, 'Report on the documentary sources for the reconstruction of

The documents examined have been largely disappointing in that they have not provided detailed descriptions of the pre-enclosure landscape. Nor have references to Sandeford been found, while only one additional reference to Redesmore has been identified to support the thirteenth-century record previously discussed by Foss.[4]

There were also remaining uncertainties regarding the historic terrain, including the marsh which featured prominently in contemporary accounts of the battle. The researchers could find only fragmentary areas of wetland and conceded that further work was required 'to establish a more coherent picture of this key element of the battlefield terrain'.[5] In the meantime they were, 'unfortunately, thrown back onto a combination of place names and soil data to define the potential extent of the medieval fen'.[6]

Running out of time, the project was left with an ever-expanding search for archaeology – '[w]ithout a securely located site from the other research, our survey of the battle archaeology had become the only way to find the battlefield' and it was here that their perseverance paid off.[7] A metal-detected lead shot, found in the very last week of their allotted time, was later determined to be medieval and had been fired. This one discovery prompted the project leader to declare the 'Bosworth problem' solved. Understandable hyperbole given the circumstances.

Foard and Curry attempt to offer an all-encompassing interpretation that ties the finds together by 're-running the sequence of documented events, but set within the historic terrain and informed by the artefact scatter'.[8] In this new narrative, the site of battle is identified, not as Ambion Hill in Sutton Cheney as many have held, but instead along a portion of Fenn Lane (once a Roman road) lying largely within Upton township. This interpretation is not without its problems, and caveats are scrupulously given for many of the conclusions. Despite more than 30 lead shot found in the extended time given to the project, plus other significant finds, the authors of this article still believe that the conclusion drawn was premature and overreached. There will be later discussion

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the historic landscape of Bosworth battlefield' by Mark Page, (hereinafter Historic Landscape), p. 8.
https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1114-1/dissemination/pdf/Reports/Bosworth_landscape_documentary_report.pdf
Accessed 10 February 2023.

[4]Ibid., p. 7.

[5]Foard & Curry, *Bosworth 1485*, p. 81.

[6]Ibid.

[7]Ibid., pp. 96-97.

[8]Ibid., p. 180.

here around what other alternatives regarding the lead shot may be considered, following this broad critique of the Foard & Curry interpretation that contests both its underlying assumptions and the plausibility of some of the theory's critical elements.

The sources drawn upon by this article are predominantly the ones used by The Bosworth Project and nothing is added to the debate regarding the veracity or strength of these or any other sources. At this stage, it is simply wished that the narrative will match more sources than any previous theory, whilst accepting that further work and evidence is needed. The authors will, however, declare their agreement with those, such as Charles Ross, who say 'on both historical and literary grounds, the [Stanley] 'Ballads' (for they are not ballads as such but poems) deserve most serious consideration as a major historical source.'[9]

Redemore and Sandeford

The names given immediately after the battle were 'Sandeford' and 'Redemore' (both subject to spelling variations). These names appear in the York House Books, which contain council meeting reports from just days after the battle

> [T]he king assertayneth you, that Richard due of Gloucestre, late callid king Richard, was slayne at a place called Sandeford, within the shyre of Leicestre.[10]

> Wer assembled in the counsail chambre … to understand how they shall be disposed enent the king's grace Henry the sevent, so proclamed and crowned at the feld of Redemore.[11]

Thus, the names of Sandeford and Redemore are linked by eyewitness accounts to the same events, at the same location, at the same point in time, and are supported by Henry's subsequent royal proclamation. Unfortunately, Sandeford and Redemore remain the most elusive of places. Neither the Bosworth Project nor any other researcher has plausibly placed them together on a map, then or since. Sandeford, as a 'sand-bottomed-ford' is generally accepted. Redemore is more problematic and, along with misleading maps and the positioning of the marsh, contributes greatly to the subsequent confusion as to the battlefield location.

[9]Charles Ross, *Richard III,* (London: Eyre Methuen, 1992), p. 235.

[10]Francis Drake, *Eboracum, or the History and Antiquities of the City of York,* (London, 1736) (hereafter, 'Drake'), pp. 121–122, reprinted in *The York House Books, 1461–1490*, Appendix V, edited by L. Atreed, (Stroud: Sutton Publishing, 1991), pp. 735–736. [City Officials Ride to King Henry, Royal Proclamation Read in City, 25 August 1485].

[11]York City Archives, HB 2/4, f. 169v, reprinted in *The York House Books, 1461–1490*, Volume 1, edited by L. Atreed, (Stroud: Sutton Publishing, 1991), p. 368.

Foard & Curry follow the impressive research of Peter J. Foss in tracing the name 'Redemore' to a 1283 reference to 'six roods of meadow in Redmoor, in Dadlington', with the name (they say) derived from the Anglo-Saxon 'Hroed-mor', a low-lying moor full of reeds.[12] Yet the same distinguished author, in his 'History of Market Bosworth', describes a 'wide plain' stretching three miles west from Bosworth containing the hamlets of Near and Far Coton, which are 'positioned on a spur of Bosworth's own hill, commandingly placed just above "Redmore Plain"' and notes that '[I]n the 15th and 16th Century, this entire area was known as Redmoor Plain'.[13] Foss quotes William Hutton in support, who stated 'its [Bosworth Field's] real name is Redmore Plain from the colour of the soil, as the meadows on the west are called White-moors for the same reason.'[14] Yet Foard & Curry reject the suggestions that the name 'Redemore' comes from the local soil colour, whilst overlooking similarities with the naming of 'Whitemoors'.

Similarly, Foard & Curry cleave to the 'Rede' element as a reference to reeds rather than the colour, claiming the 'moor' in 'Redemore' signifies low-lying ground rather than an upland moor – which is 'a tract of open uncultivated upland; a heath', or 'an open area of hills covered with rough grass' – that has red-coloured soil.[15] Yet, a number of historical names for the battle used the word 'heath' such as 'Brown Heath' (Hutton), 'Bosworth hethe' (Calais Chronicle), 'Redesmore heath' (Fabyan) and the Welsh name for the battle unambiguously supports the soil-colour argument. 'Rhos Goch' translates as 'moor red'.[16]

As for 'Sandeford', the original name given for the location of Richard's death, Foard & Curry state that 'the jury is still out';[17] the fact that it was not located by the project

[12]Peter J. Foss, *The Field of Redemore: The Battle of Bosworth, 1485*, 2nd edition, (San Francisco: Kairos Press, 1998), p. 34.
[13]Peter J. Foss, *The History of Market Bosworth*, (Sandhurst: Sycamore Press, 1983), p. 7.
[14]Ibid., p. 24.
[15]Oxford Learners Dictionary Online https://www.oxfordlearnersdictionaries.com/definition/english/moor_1 Accessed 11 February 2023; Cambridge English Dictionary Online https://dictionary.cambridge.org/dictionary/english/moor Access 11 February 2023.
[16]Geiriadur Ar-lein Cymraeg-Saesneg/Saesneg-Cymraeg (Welsh-English/English-Welsh Online Dictionary), University of Wales, https://geiriadur.uwtsd.ac.uk/index.php?page=ateb&term=rhos&direction=we&whichpart=exact&type=noun#ateb_top. Accessed 29 September 2022.
[17]Foard & Curry, *Bosworth 1485*, p. 196.

is 'taken as confirmation of Thornton's hypothesis that it was not a real place'.[18] This can be agreed, in the sense that it was a descriptive reference or local name only. So why can the same not be said for 'Redemore'?

The Marsh

This is one of the few physical clues to the battlefield location provided by contemporary sources. Following Polydore Vergil, Hall offers some context with regard to the landscape and the orientation of the armies

> Betwene both armies ther was a great marrysse which therle of Richemond left on his right hand, for this entent that it should be on that syde a defence for his part, and in so doyng he had the sonne at his backe and in the faces of his enemies. When kynge Richard saw the earles compaignie was passed the marresse, he commaunded with al hast to sett vpon them.[19]

Writing 500 years after the battle, Ross categorically states that 'when all available sources suggest that the fighting began early in the morning' Vergil, with regard to the position of the sun, and writing 20 years after the battle and with access to eyewitnesses – 'had simply got his facts wrong'.[20] This given position of the sun fits the argument that the two main armies faced each other north-south (more of which later) but is inconvenient to anyone wanting them to face each other east-west. For example, Richard Mackinder describes a manoeuvre to 'put' the sun behind Henry rather than him having 'left' it there.[21] Others have suggested an afternoon battle to achieve the same result. Foard & Curry have an east-west approach but place the marsh literally between the armies; forcing Henry to move around it, Henry Percy, 4th Earl of Northumberland inactive because of it, and claims of confirmation from the lead shot found within it.

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[18]Ibid., p. 94.

[19]Edward Hall, *Hall's chronicle: containing the history of England, during the reign of Henry the Fourth, and the succeeding monarchs, to the end of the reign of Henry the Eighth, in which are particularly described the manners and customs of those periods. Carefully collated with the editions of 1548 and 1550,* London, printed for J. Johnson &c, 1809, (reprinted New York, AMS Press, 1965), (hereinafter Hall), excerpt reprinted in Bosworth Project, 'Transcripts and translations of the primary sources relating to the battle of Bosworth' (hereinafter Transcriptions/Translations), p. 30. https://archaeologydataservice.ac.uk/archiveDS/archiveDownload?t=arch-1114-1/dissemination/pdf/Reports/Bosworth_Primary_Source_Transcripts.pdf Accessed 10 February 2023.

[20]Ross, *Richard III*, p. 220.

[21]Richard Mackinder, *Bosworth: The Archaeology of the Battlefield*, (Barnsley: Pen & Sword, 2021), p.112.

The problem arises from different potential meanings of the word between: a point on a straight line from A to B, versus a point from A and B but to one side. For example, in 2019, the BBC reported the discovery of a sixth-century Anglo-Saxon burial site 'between a pub and Aldi supermarket' when in reality, the grave site formed an almost 90-degree angle with the other two sites.[22] Thus, any medieval use of the word 'between' should be viewed with caution.

There is no dispute that there was a small area of Dadlington called 'Redmoor' in the thirteenth-century but, even if accepted that it derives from 'Hroed-mor' and not the soil colour, there is no evidence of that name still being in use in 1485. Nor whether that area was by then cultivated, or marshland that was somehow still worthy of purchase. This, however, is ultimately irrelevant because Foard & Curry admit that the proposed battle-site 'lies mainly in Upton township ... not within Dadlington' but argue that 'this should not be a problem' claiming that it might have instead been where Richard's army first deployed (even though the book places him elsewhere on page 182).[23]

The Bosworth Project identified two possible candidates for its marsh, with both possibilities based on fragmentary evidence. Foard & Curry recognise that their inability to determine from the archaeology which of their candidates played the central part in the battle is problematic, but the possibility that neither did is not countenanced. Instead, Foard & Curry offer a narrative of the opposing forces' movement before, during, and after the battle that is designed solely to support one of their candidates because if the other equally possible location was true, it would contradict their own theory. 'We therefore consider their (the troops') location principally by using the documentary record and by considering the tactical possibilities provided by the terrain, in the light of each army's approach to the field'.[24] However, this narrative is equally problematic.

Bosworth Field

So, why was Bosworth chosen? For that we need to look at where the respective armies were located in the lead up to the battle. From the Crowland Chronicle, Richard is known to have moved out of Nottingham on 19 August

[22]'Southend Burial Site UK's Answer to Tutankamun', *BBC News* (9 May 2019) https://www.bbc.com/news/uk-england-essex-48203883. Accessed 21 September 2022.
[23]Foard & Curry, *Bosworth 1485*, p. 195.
[24]Ibid., p. 182.

> Meanwhile … the enemy was making haste and moving by day and night towards a direct confrontation with the king and therefore it was necessary to move the army, though it was not yet fully assembled, away from Nottingham and to proceed to Leicester.[25]

Projecting Henry's progress in a straight line from mid-Wales through Welshpool, Shrewsbury, Newport, and Stafford, takes one directly towards Nottingham. This north easterly direction challenges the commonly held view that Henry was heading southeast, and his target was London. If Henry *was* moving 'towards a direct confrontation with the King' and the King was not ready, Richard would then find it 'necessary to move the army'. This he did and arrived in Leicester the same day. Only now, over ten days after landing, was Henry heading towards London by duly shadowing this move. '[T]hen Henry turned aside and sought Litchfield, where he passed a night outside its walls'.[26] He is known to have arrived at Lichfield on 19 August and moved to Tamworth the next day.

Thereby, on the morning of 21 August, Henry was at Tamworth and Richard at Leicester. These cities are on a straight-line, east-west alignment, 23 miles apart and Bosworth is the exact mid-point. The route taken in 1485 has now been lost but, according to Foss quoting the 'letters patent issued by Elizabeth I in 1601', the governors of Bosworth school were required to purchase a chest with three locks to be kept 'next the street leading from Leicester towards Lichfield'.[27] This route from Leicester would have been that which a now-prepared Richard took if he was heading directly to Henry at Tamworth or, more likely, if Bosworth was the expected place of battle.

Despite being the first placenames associated with the battle, Sandeford and Redemore soon fell into disuse, displaced by early sixteenth century references to the Battle of Bosworth Field. Battles often take their name from local identifiers, nearby towns or villages, routes to and from battle, camps, or places of burial. So why, in the decades following the battle, did the association with a nearby village displace the earliest names assigned to the battlefield?

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[25]Nicholas Pronay and John Cox, eds & trans, *The Crowland Chronicle Continuations: 1459–1486*, (Stroud: Sutton Publishing, 1986), (hereinafter *Crowland Chronicle Continuations*), Transcriptions/Translations, p. 5.
[26]Polydore Vergil, *Anglica Historia* (1555 version), A hypertext critical edition by Dana F. Sutton, The University of California, Irvine, (posted August 4, 2005), Transcriptions/Translations, p. 116.
[27]Foss, *History of Market Bosworth*, p. 53.

The suggestion is that both the absence of any suitably situated 'Sandeford' or 'Redemore' on contemporary or later maps *and* the rapid (in historical terms) abandonment of these names in referring to the battle indicate that these were descriptive references – whether coined by the witnesses to the battle themselves or adopted from local usage – rather than names that were in any sense formal or official. First-time visitors would need visual features to provide reference when describing to others where they had been. A 'red moor' and a 'sandy ford' would have been simple and effective descriptors for the eyewitnesses who reported back to York council the very next day.

Over time, however, the value of these descriptions would diminish. There are many red soils and river crossings in the area; for those writing decades or more after the battle, reference to more permanent and less ambiguous features was necessary. The next level of formality would be to use the name of the nearest human habitation or permanently named site. Vergil, Fabyan, Hall, and The Great Chronicle of London all stated that Richard camped at Bosworth on the night before the battle. Not one contemporary source refers to Richard at any other local village.

Notably, neither a pre-battle march by Richard from Leicester to Ambion Hill nor a post-battle march by Henry from Fenn Lane to Leicester – as would follow from the scenario proposed by Foard & Curry – would pass through Bosworth. Would other closer villages not then be of sufficient size and importance to have lent their name to the battle?[28] Also, the much-larger Hinckley is just as close to Fenn Lane as Bosworth. The focus of inquiry must therefore be on finding a location that links the three key sites identified by witnesses: Redemore, Sandeford, and Bosworth. Where, in the Bosworth area, is a location that answers these requirements *and* supports a credible narrative of how the battle played out on its' topography?

The answer is Wellsborough.

An Alternative Narrative

Wellsborough lies three miles (4.8km) due west from the centre of Market Bosworth in the county of Leicestershire. It is one mile (1.6km) north of Sibson, two miles (3.2km) south-east of Twycross, and two miles east (and within the parish) of Sheepy. First recorded as a chapelry of Sibson in 1220, Wellsborough may have been a farm settlement since Roman times but was known to be depopulated by 1445. The profile of Wellsborough is that of long flat-topped ridge, with the high ground (above 100m) half a mile in length (east/west) by a quarter-mile breadth (north/south) and covering an approximate area of 30 hectares (78 acres). Combining various points, there are

[28]Dadlington, Sibson, Stoke Golding, Sutton Cheney, and Shenton are all closer to the proposed site at Fenn Lane.

360-degree views commanding many square miles. The surrounding land slopes gently to all sides at a gradient of less than four per cent and the soil colour is predominantly red. Wellsborough has an elevation of 117 metres with Twycross slightly higher at 126m. Between the two is the River Sence at 79m. Sheepy, at 85 metres elevation and Sibson, nearer to 100m, are both prone to flood.

The authors suggest that each of the armies – Henry, Richard, Lord Stanley, and Sir William Stanley – occupied high ground at four corners that collectively enclosed the area where the battle took place. This roughly square area stretched from Atherstone (5.5 miles east) to Stoke Golding (3.5 miles north) to Market Bosworth (4.5 miles west) to Sheepy Magna, and 3.5 miles south back to Atherstone. Henry was at the south-west corner (at Merevale), Lord Stanley at the south-east (near Stoke Golding), Sir William at the north-west (Sheepy or Twycross), and Richard at the north-east (Bosworth). This clear statement by Vergil, a source used to support many arguments, has been mostly ignored by historians, 'Richard, hearing his enemy was approaching, was the first to come to the place of battle, the village of Bosworth, a little beyond Leicester. There he pitched camp.'[29] A possible clue to where Richard camped lies at Near Coton, one mile along the spur of high ground west of Bosworth, with splendid views to both south and west. The same high ground that Foss said was 'commandingly placed just above "Redmore Plain"'.[30] Later maps called part of this Coton area 'King's Hill'. 'And aftyre contynuyd his Journay tyll he cam unto a vyllage callyd Bosworth where In the ffyeldys ajoynaunt bothe hostys mett.'[31]

The authors suggest that those 'fields adjoining' were at Wellsborough.

The Approaches

It is the authors' view that 'Bosworth Field' is the ground between Wellsborough and Sibson. The following account of what happened (and where) awaits confirmation of new evidence that will support original witness accounts of the battle within this topography.

[29]Vergil, Transcriptions/Translations, p. 117.
[30]Foss, *History of Market Bosworth,* p. 7.
[31]The Great Chronicle of London, ed. A.H. Thomas and I.D. Thornley (London, 1938) [Guildhall Library MS 3313], pp. 237-238, Transcriptions/Translations, p. 16.

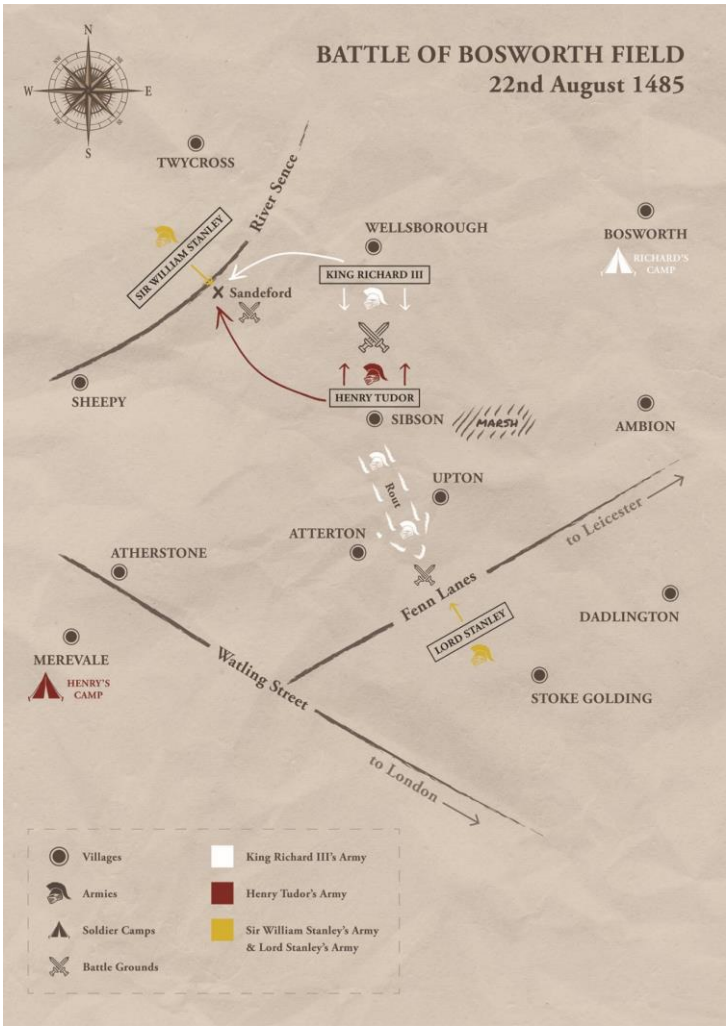

Figure 1. Map of the Battle of Bosworth as conceived by the authors

If the camp locations were as described above, then the approximate distances to 'Bosworth Field' are as follows: Richard (Bosworth) – 1.5 miles; Lord Stanley (Stoke Golding) - 2.5 miles; Sir William (at Sheepy or Twycross) – 1.5 miles; Henry's most northerly camp and his last reported location before the battle (Atterton) – 1.5 miles. This places all four armies roughly equidistant from the field of battle, with the ground between them generally flat (i.e., a plain) but gently rising to the high point at Wellsborough.

Henry may have collected his forces at Witherley, where he is known to have knighted his standard bearer William Brandon and others. He could then have used Atterton to array his forces. Of course, Atterton also works as a setting-off point for Fenn Lane because it avoids the problem of traversing the marsh at Fenny Drayton; however, it should be noted that if one heads east from Atterton, Witherley or Fenny Drayton, one is heading uphill and Richard's forces (had they been at Fenn Lane) would not have been visible until less than a mile away. This fits with Jean Molinet's description of a 'quarter league' between the forces, but not with other sources that imply the armies could earlier see each other from a much greater distance.[32] Whereas, Wellsborough – two miles away - is visible from Atterton.

'King Richard [houed] on the mountaines', taken from the 'ballad' of Lady Bessye this clearly indicates that Richard was on high ground.[33] In 'Bosworth Field', Sir William was also described as being on a 'mountain' and this narrative can only fit with the two adjoining hills of Wellsborough and Twycross. The 'ballads' also say that Sir William Stanley was 'hyndemost' but did not say to whom. It has always been assumed to be Henry, but what if he was behind Richard? As a declared traitor this would make the King watch his back (possibly using Northumberland to do so) and so prevent him from concentrating his larger army onto one battle front – a sound tactical approach.

The two adjoining hills of Dadlington and Stoke Golding do not work for Fenn Lane as the battle site because Sir William would be 'hyndemost' to neither Richard nor Henry, and Lord Stanley would be brought within view of his son, Lord Strange who was being held as a hostage, and who only reported his uncle being there at the start of the battle'

> if itt ffortune my vnckle to lose the ffeild—
> as god defend itt shold soe bee!—
> pray her to take my eldest sonne
> & exile him ouer the sea[34]

[32]Georges Deutrepont G. Doutrepont and O. Jodogne, eds, *Chroniques de Jean Molinet*, 3 vols. (Academie Royale de Belgique. Classe des Lettres et des Sciences Morales et Politiques. Collection des Anciens Auteurs, Belges, Brussels, 1935–37), Volume 1, (hereinafter Molinet), Transcriptions/Translations, p. 1.
[33]'The Song of Ladye Bessiye', British Library Harleian MS 367, fos. 89–100. Printed in *Bishop Percy's Folio Manuscript. Ballads and Romances*, ed. J. W. Hales and F. J. Furnivall, 3 vols, (London, 1868), III, pp. 319–363, (hereinafter 'Song of Ladye Bessiye'), Transcriptions/Translations, p. 111
[34]Ibid., p. 112.

The Marsh(es) Revisited

Molinet refers to Richard's horse leaping into 'a marsh from which it could not retrieve itself' at, or after, Richard's death at Sandeford, but does not say if this was the same marsh referred to at the start of the battle.[35] Most authors have assumed this, which has given rise to some convoluted theories to situate events – from the vanguard's clash to Richard's charge and death, then the ensuing rout and subsequent slaughter – and all within the ambit of the one marsh.

The authors believe the contemporary descriptions allow the possibility of there being two areas of marsh/boggy ground and suggest that this is the reason for the separate name, 'Sandeford' being given to the site of Richard's death, while still occurring within the context of the battle at 'Redemore'. Tentative locations are offered for a marsh on 'Redemoor' and areas of soft ground at a 'Sandeford' that crosses a river, not a marsh.

First the marsh. East of today's A444 road and between the almost parallel roads of Tinsel Lane and Sibson/Shenton Lane, centered approximately 2000 metres due east of Sibson and 400 metres north of Shenton Lane, is the converging point of all the run-off water from the surrounding hills of Wellsborough, Upton, and Bosworth into what is locally known as the 'Sence Brook' – officially the (Leicestershire) River Tweed. Even today, this section of the Sence Brook is prone to waterlogging. It is suggested that in 1485 it was a sizeable marsh.

The position of the marsh at this location allows enough space alongside it to be level with the ridge line at Sibson. This small plateau is in an arc running south to west either side of the current A444 road and is centered on Saint Botolph's church. If Henry's forces had lined up here, it would exactly match the 'quarter league' (ca 0.86 miles, or 1.4 kilometers) distance between the two armies described by Molinet, '[T]he French also made their preparations marching against the English, being in the field a quarter league away.'[36]

The nearest equivalent point in terms of height to Wellsborough is 2 miles away at Twycross. In fact, Twycross is slightly higher at 126 metres but both, in medieval terminology, would be called 'little mountains'. Mid-way between them at 79 metres is the Sence, which flows for 20km from the north-west at Bardon Hill (the highest point in Leicestershire), heading southwest and nearly reaching Watling Street. The Sence Brook rising from Barwell in the east flows under the A444 immediately south of Sibson before joining the Sence at Ratcliffe Culey (a distance of 13km). The brook drops 50 metres at a gradient of 1:650 which results in a slower flow and a muddy,

[35]Molinet, Transcriptions/Translations, p. 2.
[36]Ibid., p. 1.

marshy, and more meandering channel than the Sence, before both join the River Anker near Atherstone shortly after. The authors believe that Sandeford is a crossing point of the Sence between Wellsborough and Twycross near Harris Bridge on the A444. This bridge can be dated back to at least 1582, when the will of Richard Orton provided money towards its' upkeep, but the true origins of the name are unknown. Dare the authors suggest the original local name was *Harry's* bridge? In the past, the surrounding area was marshy enough to contain osier beds. It was/is always prone to flood and could still have pockets of soft ground even in summer.

The authors respectfully differ with the assertion by Foss that one must 'dispense once and for all with the notion that the battle of Bosworth involved the defense of a hill against an assault on it by an ostensibly smaller army. This is Hutton's view followed by Kendall, Ross, and Williams. As we have already established, the battle was fought on a plain - the plain of Redemore.'[37] It should be pointed out that the gradient at Wellsborough is sufficiently slight to qualify as a 'plain' yet still be high enough for a battle and a coronation to be on the same piece of land i.e., for Henry's coronation to occur on the field of Redemoor.

The Stanleys

Before the battle, and with his son held hostage, Lord Stanley could not afford to be seen too close to Henry.[38] If Richard was convinced that Lord Stanley stood ready to prevent Henry from 'escaping' (unlikely given his direction-of-intent thus far) south towards London, then he (Richard) would not need to march via Roman roads out of Leicester – towards Fenn Lane - to achieve the same result. By the same reasoning, Lord Stanley would have had to move out of Atherstone prior to Henry's arrival and find somewhere else to camp.

The authors are in selective agreement with Prof J J Bagley when he says

> Lord Stanley halted his troops at Stoke Golding: there he was strategically placed to help either side and distant enough to avoid being involved in the first stages of the battle.'[39]

This sits well with Vergil's observation that he was 'midway between the two armies'[40] with midway meaning Henry at Merevale and Richard at Bosworth. This was the same tactic and distance used by Lord Stanley at Blore Heath in 1459. Fabyan said that

[37]Foss, *The Field of Redemore*, p. 47.
[38]Hall, Transcriptions/Translations, p. 20
[39]John J. Bagley, *The Earls of Derby 1485-1985,* (London, Sidgwick & Jackson, 1985), p. 33.
[40]Vergil, Transcriptions/Translations, p. 117.

'[s]ome stood hoving afar off till they saw to which party the victory fell' and Ross helps us understand that 'If Henry won with help from Sir William, then Lord Stanley could claim credit. If not, his own non-intervention might save the family fortunes from Richard's wrath.'[41]

Sir William joined Henry at Stafford on 19 August, and they departed for Lichfield the next day

> Unto Lychfild they ryde; a hatrot of armes came to number the company that was with the knight; it was a goodly sight; gonnes in Lychefyld craked; glad was all the chivalry that was on Henry's party.'[42]

> '[G]uns in Lichefeild they cracken on hye
> to cheere … our Kinge.[43]

No proof appears to exist that Henry landed with guns or if he used them in battle. The comment that 'gonnes ... craked' clearly indicates that there were guns at Lichfield and that they were fired in celebration – an important point to note. The Bosworth Project found a problem with 'the way in which rounds of very different calibre lie in close proximity.'[44] This should not happen when guns of various sizes are fired from the same point. Consideration of a separate firing event on a different day, or similar celebratory firing at a battle-winning-rout, may add to our knowledge with regard to the random shot-scatter at Fenn Lane.

On 20 August, when Henry and Sir William were marching to Tamworth, word reached them that Lord Stanley was in trouble, as 'Bosworth Field' recorded,

> Througheout Lychefyld rydes that knight; and on the othar syd taryed he, tyll a message cam to hyn, and sayd, 'Lord Stanley is his inemyes nye; they be but a lytle way atwyne; he will fight within thre howres with Richard of England, callyd

[41]Robert Fabyan, Chronicle (first printed 1516 by Richard Pynson as *The new chronicles of England and of France*), (hereinafter Fabyan), Transcription/Translations, p. 16; Ross, *Richard III*, p. 218.
[42]Harleian 542, f.34. Printed in Leicestershire and Rutland Notes and Queries, ed. John and Thomas Spencer, vol I (1881-1891), Transcriptions/Translations, p. 41.
[43]'The Ballad of Bosworth Fielde', BL Additional MS 27879, fos. 434-443. Printed in Bishop Percy's Folio Manuscript. Ballads and Romances, ed. J. W. Hales and F. J. Furnivall, 3 vols. (London, 1868), iii, pp. 233-59. (hereinafter 'Ballad of Bosworth Fielde'), Transcriptions/Translations, p. 75.
[44]Foard & Curry, *Bosworth 1485,* pp. 185-186.

> kyng.' [Sir William] came to Adorstone ere nyght, wher the lord Stanley lay in a dale, with trompets, and a goodly company: all that nyght they ther abode.[45]

Sir William immediately rode ahead to Atherstone. Henry, having possibly halted in hesitation and/or consultation, lost contact with his army as darkness fell on that long days' march and was forced to hide overnight before re-joining his army, at Tamworth, the following morning.

So, was there a battle that day or not? And, if so, did it happen at Fenn Lane? The above suggests a battle and there is supporting evidence. Inquisition *post morterm* for 20-21 August 1485 record the deaths of seven 'tenants-in-chief' – a not-insignificant amount compared to sixteen such deaths at Bosworth Field.[46] These were men of status and responsible for raising their share of the troops called for by Richard and Henry. Four of the deaths were men from Suffolk and Essex; Richard Broughton, Sheriff of Leicester and Warwickshire, was another. If this many men of status were killed in one day, it is likely that many more deaths were not recorded. Three hours was enough time for Lord Stanley to deploy guns near Fenn Lane and it seems plausible that a conflict occurred given the scenario of different armies – with different allegiances and agendas – crossing paths at the same time. This could include Sir Richard Brackenbury (controller of the royal arsenal), bringing an artillery train to the battle at Richard's command and if there was such an event, then further work is required to untangle the knot of who was where, when, and doing what, because evidence for this could be amongst that found by the Bosworth Project.

Monday August 22 - Movements & Battle

Foard & Curry propose that the armies of Richard and Henry approached from opposite ends of Fenn Lane and faced each other, either side of a marsh, in an east-west orientation. The presence and effect of a marsh is also the reason given for the spread of ballistic evidence claimed to have been fired by Richard at Henry's approach. They further lead us to understand that Henry, at the marsh, moved 90 degrees left - supposedly in a pre-determined 'feint' – and that the marsh was also the reason that Lord Northumberland did not attack the rebel vanguard when it passed in front of them because, 'as so eloquently explained by Vergil, the marsh was a fortress'.[47] Adding,

> This is almost certainly the same manoeuvre as that described by Vergil, where the vanguard turned so that the sun was at their back and the marsh, which lay

[45]Harleian 542, Transcriptions/Translations, p. 41.
[46]David Baldwin, paper presented to the 'Bosworth Revisited' conference, 19 August 2006.
[47]Foard & Curry, *Bosworth 1485*, p. 188.

> between the two armies, provided protection for the right flank' – and that this 'was the decisive move on which the outcome of the battle hung.[48]

But Vergil does not use the word 'turned', he actually uses the words 'purposely kept [the marsh on his right]' and 'also by doing this he [Henry] left the sun behind [i.e., at his back, where it was already]'.[49] The combination of these words indicates that there was no deviation in direction. And, besides, would it really be a 'feint' if there were no prospect of marching through a marsh that Foard & Curry say was impenetrable?

Vergil also says, 'When the king saw the enemy pass by the marsh, he commanded his men to attack'.[50] If both armies approached with a marsh between them, at what point would Henry have been considered to have 'passed' the marsh if it initially impeded his forward progress? In turning 90 degrees left, only by reaching the extent of the marsh, in this new direction, could he then have 'passed' it. But, even now, he would still not have 'passed' it in his original direction of travel and the authors suggest there was nothing to prevent Northumberland from firing had he been there. So, at neither point would Richard have considered Henry to have 'passed' the marsh. Hence, with this supposed manoeuvre, there was no 'trigger' to start the battle. Sources say that battle was joined *after* Henry's army had passed the marsh. For Foard & Curry to claim the marsh degraded ballistic velocity would mean that Richard's artillery fired *before* Henry had passed the marsh. The conclusion drawn, therefore, is that this area, marsh or otherwise, was not the primary battlefield.

Figures vary over how many thousands of bowmen were present at Bosworth, but each was capable of firing six arrows per minute, possibly more. So, whilst it is plausible to suggest complete degradation of all of those arrows, it is still disappointing to note that no arrowheads were discovered by the Bosworth Project. This leaves open the tantalising and very real possibility that the initial engagement of the battle happened elsewhere.

The Crowland Chronicle, Molinet, and Diego de Valera agree that the initial movement was that of Henry's army.

> The king had the artillery of his army fire on the earl of Richmond, and so the French, knowing by the king's shot the lie of the land and the order of his battle, resolved, in order to avoid the fire, to mass their troops against the flank rather

[48]Ibid., 186.
[49]Vergil, Transcriptions/Translations, pp. 117–118.
[50]Ibid.

> than the front of the king's battle. Thus they obtained the mastery of his vanguard, which after several feats of arms on both sides was dispersed.[51]

By the absence of a comma, Molinet appears to suggest that Richard's guns showed Henry 'the lie of the land'. This is a somewhat pointless argument if the ground was virtually flat, as is the case with Fenn Lane. The 'lie of the land' needs to be a separate element of a list (guns/lie of the land/order of battle) proving that guns, either centrally or enfilade fired, could not see west of the A444 from Tinsel Lane. The downward-sloping ridgeline running southwest from Wellsborough would have blocked the view and this is why the French attacked Richard's right flank. By taking the battle over this ridge, Henry could move away from the guns and shift the focus west towards, and within the view of, Sir William Stanley. This move would have reduced Richard's ability to see and control the whole of the battlefield that began on a north/south axis and using the lie of the land in this way could well have been the tactical masterstroke that won Henry the battle.

Despite no one else previously using such an obvious route through their 'fortress' of a marsh, Foard & Curry have Richard using Fenn Lane to charge Henry with cavalry.[52] Precariously undertaken along a narrow lane of unstable surface, this move was needed to provide context for the high-status find of a gilded sword guard 500 metres away. They suggest it is proof that Henry's standard bearer William Brandon was killed here by Richard and ask, 'is this the very location where king and pretender clashed?'[53]

Then, despite no other source saying so, Foard & Curry have Richard driven back 600 metres (with or without a horse?) so that he can be in the correct spot for the rightly-famous silver gilt boar brooch to be found, 'surely no coincidence and compatible with the death or capture of the two most important individuals in the royal army'.[54] Certainly a find of major significance from an high-status participant, although Professor Michael Lewis (Head of The Portable Antiquities Scheme at The British Museum) cautioned, 'Some people think that the badge identifies the actual spot where King Richard perished, but that might be reading too much into it.'[55] Much has been made of the boar brooch but it is no more proof that Richard died here than a rare Spanish half-real is proof that Salazar, a known combatant for Richard, was escaping from Wellsborough.[56] The suggestion has not been seen that, rather than being lost in

[51]Molinet, Transcriptions/Translations, p. 1.
[52]Foard & Curry, *Bosworth 1485*, p. 192.
[53]Ibid., p. 193.
[54]Ibid., p. 193.
[55]'Crushed Bronze Age cup shines out among 1.5m detectorists finds', *The Times*, 9 July 2020.
[56]Portable Antiquities Scheme WAW-BC30DD 1474-1504

combat, the boar brooch was deliberately discarded as a natural act of disassociation with the losing side to whom you had previously showed your support. Could it now belong to Lord Stanley? A bonus of this convenient relocation, by the way, is that it places Richard 'only' 400 (rather than 1,000) metres from his suggested original marsh-crossing point of Fenn Lane, which Foard & Curry wish to designate as 'Sandeford'.

The authors believe that Wellsborough was at the time uncultivated and have trouble understanding why (as some suggest) any commander would deliberately choose to fight elsewhere in fields with deep ridge-and-furrow ploughing surrounded by ditches and hedges. And surely no commander would deliberately compromise his artillery by deploying it behind a marsh, nor expect his men to engage in hand-to-hand fighting whilst trying to walk through one? The Crowland Chronicle reports

> [T]here now began a very fierce battle between the two sides; the earl of Richmond with his knights advanced directly upon (*no 'feint' nor change of direction here)* King Richard while the earl of Oxford, next in rank after him in the whole company and a very valiant knight, with a large force of French as well as English troops, took up his position opposite the wing where the duke of Norfolk was stationed.[57]

Consider Richard's army along what is now Tinsel Lane, which runs parallel to and 400 metres below the Wellsborough ridge top, offering 180-degree views and facing Henry's army directly south along Sibson ridge, three-quarters of a mile away. Views to the west are more limited until one reaches what is now the junction with the A444 Burton Road. If Henry had moved towards Sir William in an arc from Sibson to seek help, then he would not have been visible to Richard from Tinsel Lane. Confirmation of this reduced power of supervision appears to exist in the poem 'Bosworth Field' by Sir John Beaumont in 1629.

> [T]he king intended at his setting out / To helpe his Vanguard, but a nimble scout / Runnes crying; Sir, I saw not farre from hence, / Where Richmond hover with a small defence, / And like one guilty of some heynous ill / Is couer'd with the shade of yonder hill. … Then Richard with these newes himselfe doth please / He now diuerts his course another way, / And with his army led in faire array, / Ascends the rising ground, and taking view / Of Henries souldiers, sees they are but few.[58]

[57]*Crowland Chronicle Continuations*, Transcriptions/Translations, p. 6. Authors Italics.
[58]Beaumont, J., 'Bosworth-field: A Poem. Written in the Year 1629 and Dedicated to King Charles I' (Gale ECCO, 2018), p. 52.

For Richard to 'ascend the rising ground', he would climb back to the highest westerly point of Wellsborough. From there, he could fully see Henry at Sibson making his way towards Sir William near Twycross. Vergil said that he 'attacked him [Henry] from the flank, riding outside the battle-line', which fits with Richard charging to the west of his vanguard and towards the Sence.[59] This move (desperate or calculated genius) could very well have succeeded but for the timely intervention of Sir William Stanley, 'remembringe the brekfast that he promysed hym, downe at a backe he hyed, and set fiersly on the kynge.'[60]

Although some use the word 'banke', Ian Forbes Baird says it should be 'backe'; effectively meaning 'around the back'.[61] There is validity in either interpretation since Sir William was both behind Richard at the outset and on a slope possibly from the high ground now occupied by Copton Ash Farm – 108m elevation and less than half a mile from the Sence.

The Rout

Foard & Curry say 'Sandeford need not necessarily be the place of the battle itself but instead it indicates the place where Richard was killed in a rout … although there is strong evidence to suggest that he died on the field.'[62] The authors believe that Richard's death was not 'in a rout' but at the start of it. Sir William took advantage of Richard's dislocation from his main body of troops and descended upon him before he had time to escape or be rescued. The onward flooding of the battlefield by these extra troops, possibly combined with the celebratory cheering by those who could see King Richard dead, caused the panic and thus the rout. In this theory, Sandeford was the first point of contact for Sir William's troops and Richard was not killed in the rout but was rather the trigger for it to begin, with 'Meanwhile after a brief encounter Oxford quickly routed the others fighting in the forefront, of whom a goodly number were killed in their flight.'[63]

With the battle taking place in the south and west quadrant of Wellsborough, the options for escape were as follows: for those engaged at Sandeford, some may have had chance to escape north which may have been Salazar's exit strategy, hence the significance of where the half-real was found; otherwise, the rapidly-closing gap caused by the direction of attack from Sir William Stanley and his men forced them into the ongoing vanguard action, this would, in turn, have escalated the panic and put Richard's

[59]Vergil, Transcriptions/Translations, p. 118.
[60]Harleian 542, Transcriptions/Translations, p. 42.
[61]Ian Forbes Baird, 1990 p.358 *Poems concerning the Stanley family (Earls of Derby) 1485-1520* https://etheses.bham.ac.uk//id/eprint/575/. Accessed 21 September 2022.
[62]Foard & Curry, *Bosworth 1485*, p. 66.
[63]Vergil, Transcriptions/Translations, p. 118.

men to flight. The rout would then be on, and escape routes would soon diminish. Foard & Curry say that Oxford pursued Norfolk towards a windmill, one of the very few times they ascribe any veracity to the Bosworth 'ballads', with a site in Dadlington 'by far the most likely candidate'.[64] Previously only finding watermills in the immediate Wellsborough area, an alternative windmill, at the Coton site proposed for Richard's camp, can now be offered.[65]

The option for the majority of those pursued – if there was a marsh to the east of Sibson as proposed – was likely to be downhill and south-eastwards. Pursuing troops would have driven them through Upton and into the waiting arms of Lord Stanley at Fenn Lane, just as Molinet described '[T]he vanguard of King Richard, which was put to flight, was picked off by Lord Stanley'.[66] Hutton describes a two-mile pursuit 'towards Stoke' which many historians have dismissed as making no sense from nearby Ambion Hill or Fenn Lane but fits perfectly if originating from Wellsborough. A rout is more deadly when fleeing men become trapped (as at Towton in 1461) but, in the scenario proposed by Christopher Gravett - with a rout towards Dadlington windmill and away from all other combatants - there is nothing to trap the men being chased.[67]

The pursuit of a rout with mediaeval artillery is impossible. Instead, the authors' proposal is that Lord Stanley's guns were already lined up near Fenn Lane and that the rout was forced onto them. Trapped by Henry's chasing troops, Richard's men simply had nowhere left to go. And this seems consistent with Lord Stanley's modus operandi that he would not care to which routed side he was firing on - safely knowing 'to which party the victory fell'.[68] Because more died in the rout than at the main battle, is this a possible reason why original maps show the battle to be in this area? Or was it because of the 'Dadlington field' signet warrant reference in 1511?

> …bielding of a chapel of sainte James standing upon a parcell of grounde where Bosworth' feld, otherwise called Dadlyngton' feld, in our countie of Leicestr' was done.[69]

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[64]Foard & Curry, *Bosworth 1485*, p. 192.
[65]Historic Environment Record ID-MLE2910 1067-1539
[66]Molinet, Transcriptions/Translations, p. 1.
[67]Christopher Gravett, *Bosworth 1485 The Downfall of Richard III*, (Oxford: Osprey 2021), p. 81.
[68]Molinet, Transcriptions/Translations, p. 1.
[69]TNA C.82/367/no.15: signet warrant, 1511. Transcribed in O.D. Harris, 'The Bosworth Commemoration at Dadlington', *The Ricardian*, 7.90 (1985); Transcriptions/Translations, p. 65.

This warrant is often taken as proof that the battle took place there, but another interpretation is that the area near Stoke Golding and Dadlington was indeed a parcel *or part* of the battle – but not the main site – and that *part* was 'otherwise called Dadlyngton feld'. The authors feel it should join 'Redemore' and 'Sandeford' as the final part of this battle-triumvirate.

The Aftermath

Meanwhile, back at Wellsborough

> 'Which praier finyshed, he replenyshed wt incomperable gladnes, ascended vp to the top of a littell mountaine'[70]
>
> 'Henry … climbed a nearby hill, where ... with a great shout his soldiers acclaimed as him as king'.[71]

It is claimed by Foard & Curry that the change of a hill name in Stoke Golding from 'Garbrody's Hill' to 'Crown Hill'[72] is proof that Henry was crowned there after the battle. 'Now that the location of the battlefield is known (sic), such identification is given further support from Vergil's reference to Henry going from the battlefield to a nearby hill where he was crowned. Crown Hill is the only prominent hill close to the battlefield.'[73]

But Vergil did not say 'going from the battlefield'. Henry was crowned at Redemore, where the battle took place and Stoke Golding is not connected closely enough with battle-related finds to justifiably be described as the same piece of land. If true, this makes Garbrody's Hill the wrong crowning site, and their location of the main battle site wrong as well.

Knowing that Richard was dead – because he was a witness – it is very unlikely that Henry would have joined the pursuit of a rout that ended at Fenn Lane. Instead, he would have stayed at Wellsborough because, from the Sence (Sandeford), it is only a few hundred yards of rising red ground (Redemoor) to reach Wellsborough's crowning hill of Bosworth Field.

Conclusion

This article is not a case of our site versus theirs as they are both part of the same story. Whilst agreeing with Hicks that 'the main fighting seems to have taken place

[70]Hall, Transcriptions/Translations, p. 32.
[71]Vergil, Transcriptions/Translations, p. 118.
[72]Foard & Curry, *Bosworth 1485,* p. 87.
[73]Ibid.

beyond the large area studied', criticism that The Bosworth Project investment return was 'meagre' [and] "does not substantially alter or confirm what little was already known' is a trifle harsh.[74] The Bosworth Project provided a basis for the considerable effort needed to shift intransigence that the battle occurred at Ambion Hill and so opened up possibilities for sites not previously considered. Unfortunately, a new intransigence has seemingly taken hold and other possibilities have *not* been explored.

The authors believe that Wellsborough has the strongest case to be called 'Bosworth Field'. The authors' alternative narrative is coherent, easy to understand, and achieves the aim of matching more contemporary sources than any previous theory.

It does not dismiss the Bosworth Project's findings but rather includes them to much greater effect.

[74]Michael Hicks, *Richard III The Self-Made King*, (New Haven: Yale University Press 2021), pp. 23-24.

From 'Sick Comforts' to 'Doctor's Garden': British Naval Hospital Ships, 1620 to 1815

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ABSTRACT
British hospital ships of the seventeenth century were hired vessels providing 'sick comforts', and safe conveyance for sick and wounded men. Even after the establishment of Admiralty regulations in the eighteenth century, the medical staffing of hospital ships varied in quantity and quality. Nonetheless, these ships extracted sick and wounded men from warships, cared for them, conveyed them to Naval hospitals, accommodated them when convalescent, and repatriated them when invalided out. Under the Physician to the Fleet, hospital ships became part of the Navy's efforts to ensure that fresh provisions – the 'doctor's garden' – and medical necessities kept seamen fighting fit.

Introduction

Hospital ships have accompanied Royal Naval operations since the early seventeenth century, yet their use and development in following years has been somewhat neglected by historians. This paper builds on previous scholarship to focus on British hospital ship development and deployment to the early nineteenth century. Analysis of records at The UK National Archives, especially Admiralty musters and Navy Board ships' pay books, and additional sources such as surgeons' medical journals and physicians' memoirs, provides definitive evidence showing how, where and when the principal naval hospital ships were employed in different periods.

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Hospital Ships in the Seventeenth Century

The first example of a hospital ship in the Royal Navy is dated 1608 in a much-quoted paper by Shaw.[1] However, this early date appears to be based on a misreading of the cited reference to a 1620 naval expedition to Algiers.[2] A hired ship, *Goodwill*, served as a store ship, later provided the fleet with 'sick comforts', and for a short period took on board sick seamen from the king's ships. At this time, it was customary to land naval sick at the nearest port where they received lodging and care.[3]

The potential benefit of hospital ships in enabling the isolation of seamen with infectious or contagious diseases was explicitly recognised following the disastrous Cadiz expedition of 1625. Captain Nathaniel Butler advocated that each squadron of a fleet should have a hospital ship with cabins to accommodate sick men, well-furnished with medical supplies, and a dedicated 'chirurgeon' and mate. Such provision, however, was slow in coming.[4]

In the First Dutch War (1652-54), the fleet operated mainly in English coastal waters, and there is no evidence for hospital ships; fighting ships would have come into port to discharge their sick and wounded. During the Second Dutch War (1665-67), at the urging of James Pearse, Surgeon-General of the fleet, dedicated hospital ships with surgeons and medical provisions were employed for the first time to receive casualties from men-of-war after battle. Notably, the *Loyal Katherine* treated and evacuated over 500 men wounded in the Battle of Lowestoft, 3 June 1665.[5] In the Third Dutch War (1672-74), Pearse specified that hospital ships should be staffed by one surgeon, three or four able mates and two or three landsmen as cooks and nurses; he submitted to the Navy Board a detailed list of the equipment, stores and foodstuffs required.[6]

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[1]J. J. Sutherland Shaw, 'The Hospital Ship, 1608-1740', *Mariner's Mirror,* Vol. 22 (1936), pp. 422-426.

[2]M. Oppenheim, *A History of the Administration of the Royal Navy and of Merchant Shipping in Relation to the Navy from MDIX to MDCLX with an Introduction Treating of the Preceding Period*, (London: John Lane, 1896), pp. 187-188.

[3]J.J. Keevil, *Medicine and the Navy 1200-1900*, Vol. I, (Edinburgh: Livingstone, 1957), pp. 156-157; John Raymond Hailey, *Royal Naval Hospital Ships 1620-1720,* (M.A. Dissertation, University of Exeter, 2000), pp. 9-11.

[4]Keevil, *Medicine and the Navy*, Vol. I, pp. 196-197; Hailey, *Royal Naval Hospital Ships,* pp. 11-13.

[5]J.J. Keevil, *Medicine and the Navy 1200-1900*, Vol. II, (Edinburgh: Livingstone, 1958), pp. 84-86; David Stewart, 'Hospital Ships in the Second Dutch War', *Journal of the Royal Naval Medical Service,* Vol. 34, No. 1 (1948), pp. 29-35.

[6]C.P. Willoughby, 'Care and Diligence – the professional life of James Pearse, sea surgeon, courtier and the founder of naval medicine', *Journal of the Royal Naval Medical Service,* Vol. 105, No. 3 (2019), pp. 202-206.

During the War of the English Succession (1689-97) hospital ships became a regular feature of naval operations. Confined chiefly to the Channel and North Sea, they seem to have been underused and were inactive during the winter months. None were retained at the end of the war.[7]

Hospital ships of the late seventeenth century were usually old merchant ships with poor sailing qualities, hired for a minimum of six months. They typically displaced 650 tons or less, carried 22-40 guns, and had a crew of up to 70 men excluding the medical staff. Predominantly engaged during times of conflict, they underwent minimal alteration: provision of a storeroom for medical necessities; fitting of platforms and cradles; and the cutting of gratings between decks to aid ventilation. Since they were still regarded as fighting ships, however, fleet commanders could assign them to other duties such as convoy protection.[8]

The Early Eighteenth Century

Several improvements were made to hospital ships during the War of The Spanish Succession (1701-14). Firstly, the gun-deck was reserved for the accommodation of sick and wounded, bulkheads were removed and canvas screens used to separate infectious cases. Secondly, assistance available to the surgeon was increased to four mates, eight helpers and a boy. Thirdly, after an initial prohibition, women were employed as nurses and laundresses to the sick and wounded, a practice that began in the reign of William III.[9]

There was a marked expansion in the number of hospital ships; at least 20 different vessels were commissioned by the Navy and deployed in the Mediterranean all year round.[10] Thereafter, the vessels employed as naval hospital ships were either built in naval dockyards or purchased rather than hired. *Looe* (1707-37), a 40-gun 553-ton fifth-rate, was converted into a hospital ship with a complement of 60 at Sheerness in 1716-17.[11] The similar *Portsmouth* (1707-28), built at Deptford, was commissioned in 1720 for the Baltic, and fitted out as a hospital ship at Sheerness in 1721.[12]

[7]Keevil, *Medicine and the Navy*, Vol. II, p.174-178 & pp. 182-187.
[8]Hailey, *Royal Naval Hospital Ships,* pp. 24, pp. 37-38.
[9]Keevil, *Medicine and the Navy*, Vol. II, pp. 241-247; Hailey, *Royal Naval Hospital Ships,* pp. 38-48.
[10]Hailey, *Royal Naval Hospital Ships,* pp. 7-8.
[11]Royal Navy ships were rated according to their size, generally by the number of guns. Only ships with a certain number of guns (from 1756, 60 and above) were ships-of-the-line. Smaller ships functioned as support vessels. A ship smaller than a sixth-rate was unrated (unr).
[12]Rif Winfield, *British Warships in the Age of Sail, 1714-1792*, (Barnsley: Seaforth, 2007).

According to *Looe*'s pay books, while in the Baltic in June 1717, the surgeon was accompanied by his servant, mates (3) and assistants (8).[13] *Looe* was paid off in November, recommissioned for the Baltic in March 1718 and was with the fleet at the Battle of Cape Passaro, Sicily, 11 August 1718. The nominal surgeon's complement of 22, including the surgeon, mates (4), assistants (8), boy (1), helpers (5) and laundresses (3) was not reached and was further depleted by men and women discharged, run (deserted), or dead before the battle.[14]

On *Portsmouth*, a complete surgeon's company of 22 with similar composition, except for assistants (9) and laundresses (2), was assembled in March 1721. A physician's servant was also borne, but his master was not identified.[15] In May 1726, with an expanded complement of 74, the surgeon's list numbered 22 on sailing for the Baltic, although one mate, a helper and two laundresses had died by November when the ship returned to Woolwich. A similar medical complement was aboard at Copenhagen from May to July 1727.[16]

In 1730, the operation of hospital ships was codified in Admiralty regulations which echoed earlier developments and remained unaltered during the century (Figure 1). Gun-decks were 'entirely set apart for the Reception of Sick Men'. Ventilation scuttles were installed, and cabins and bulkheads removed and replaced with deal or canvas partitions to separate 'such as have malignant Distempers'.[17] The gun-deck also held all necessary cradles with bedding and 'two pair of chequer'd Linnen Sheets' per bed. The ship had an experienced surgeon, his servant, mates (4), men assistants (6), a baker, and washermen (4), and housed the squadron's physician. The 'Men under Cure' were fed 'the best and newest Provisions in the Ship' including fresh meat when available.[18]

[13]The National Archives (hereinafter TNA) ADM 33/301 Navy Board, Ships' Pay Books, *Looe*, 1717.
[14]TNA ADM 33/318, Navy Board, Ships' Pay Books, *Looe*, 1718-22.
[15]TNA ADM 33/298 Navy Board, Ships' Pay Books, *Portsmouth*, 1721.
[16]TNA ADM 33/320 Navy Board, Ships' Pay Books, *Portsmouth*, 1726-27; ADM 36/2712-13 Admiralty, Royal Navy Ships' Musters, *Portsmouth*, 1726-27.
[17]Admiralty. Regulations and Instructions relating to His Majesty's Service at Sea (London, 1731), pp. 137-139; and Thirteenth Edition (London, 1790), pp. 139-141.
[18]Ibid.

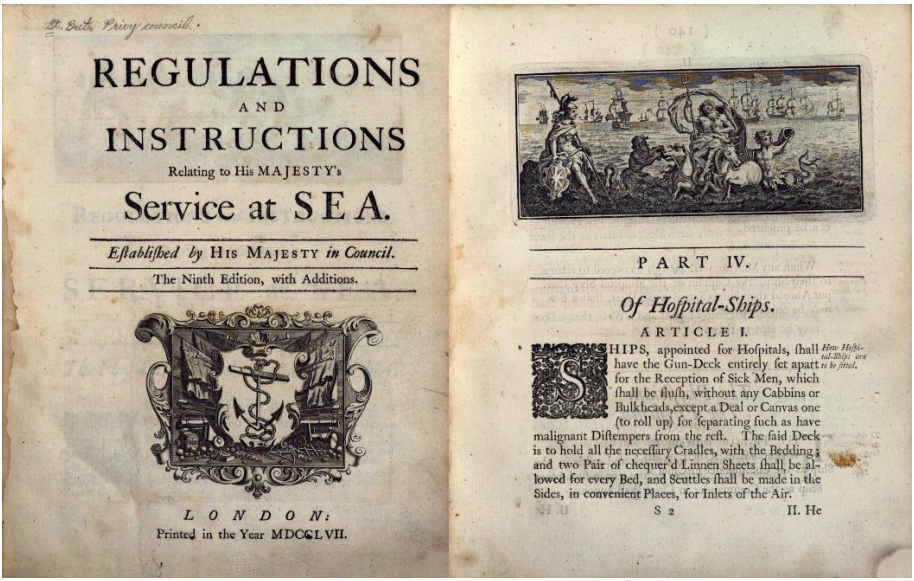

Figure 1: Admiralty Regulations and Instructions.[19]

The new regulations were closely reflected in *Looe,* which had been refitted as a fifth-rate and was later re-converted to serve as a hospital ship with a complement of 117 off Lisbon and the Tagus from August 1735 to April 1737. Between December 1735 and July 1736, the ship took more than 100 sick and hurt seamen from 15 ships.[20] Also on board were Dr James Lidderdale, later appointed 'Physician to the Squadron of His Majesty's Ships and Vessels to be Employed in the Mediterranean' by warrant of 4 May 1738, and his servant.[21]

Hospital Ships of the 1740s

During the next major conflicts, the War of Jenkins' Ear (1739-48) and the War of The Austrian Succession (1740-48), the Navy again employed hospital ships (Table 1). These were either purchased storeships, including a former French prize, or fourth- and sixth-rates of up to 50 guns and 750 tons, which were refitted to serve as hospital ships. Sea-going vessels deployed in the Caribbean, Mediterranean or East Indies carried a complement of 65-120 men. Several ships that had seen the end of their sailing days served at home ports and required a reduced crew of only 12-36,

[19]Frontispiece and beginning of Part IV 'Of Hospital-Ships', 9th ed., (London, 1757).
[20]TNA ADM 33/353 Navy Board, Ships' Pay Books, *Looe*, 1735-37; ADM 36/1816-17 Admiralty, Royal Navy Ships' Musters, *Looe*, 1735-37.
[21]TNA ADM 6/15/113 Admiralty, Service Records, Dr James Lidderdale, 1738.

depending on size, which ranged from first- and second-rates of 1,500-2,000 tons at Portsmouth and Sheerness, to smaller vessels at Portsmouth, Plymouth and Tower Wharf.

SHIP	YEARS	TYPE	TONS	MEN	WHEN	WHERE	TNA RECORDS
Princess Royal	1739-50	24/unr	541	77/92	1740-43	Caribbean	33/362 & 372 36/2619-20
Scarborough	1739-44	18/unr	501	77/92	1740-44	Caribbean	33/381 36/3410-11
Blenheim	1706-63	90/2	1,557	32	1741-48	Portsmouth	33/391 36/301
Sutherland	1716-54	50/4	676	100	1741-45	Mediterranean	33/390 36/4118-20
Solebay	1711-48	20/6	272	12	1742-48	Tower Wharf	36/4168
Chester	1708-50	50/4	704	23	1744-48	Portsmouth	33/391 36/684
Enterprize	1709-49	40/5	531	36	1745-48	Plymouth & Portsmouth	33/403
Rochester	1716-48	50/4	719	100	1745-47	Mediterranean	33/394 36/2948
Dolphin	1732-55	20/6	428	65	1745-46	East Indies	33/384 36/867
Britannia	1719-50	100/1	1,895	36	1746-47	Sheerness	33/391
Apollo	1747-49	20/unr	744	120	1747-48	East Indies	33/400 36/114

Table 1: Principal Hospital Ships, 1739-48.[22]

From 1739 the fleet was afflicted by an epidemic of 'violent and malignant fever' which threatened manning levels. The three-decked *Blenheim* was fitted at Portsmouth to receive sick men from June 1740 and proved useful in stopping men from deserting.[23] The guns were removed, and the gun-decks reconditioned to accommodate the sick in wards designated according to various afflictions – Itchy, Fever, Flux, and Ague (scabies, fevers, dysentery and malaria, respectively) – with additional wards on the middle deck. There were 255 cradles on board and a scuttle was fitted in each

[22]When and where hospital ships served and the ship's complement at the time from specified TNA records; details of ships' years of naval service, type (guns/rate) and tons as built from Winfield, *British Warships, 1714-1792*.

[23]Daniel A. Baugh, *British Naval Administration in the Age of Walpole*, (Princeton: Princeton University Press, 1965), pp. 179-186.

porthole to aid ventilation.[24] *Blenheim* was recommissioned as a hospital ship for a second time at Portsmouth (see below).

During this period, women nurses appear to have been common aboard hospital ships in port. Aboard *Blenheim*, on 1 April 1741, in addition to the surgeon, his servant, mates (7) and assistants (6), there were women nurses (8) and washerwomen (4). More nurses joined in May and June. From 1 April to 19 May 1748, when the ship was paid off, the complement of nurses stood at 15.[25] This is consistent with the maximum capacity of the ship, each nurse looking after 17 patients on average, equivalent to a set quota of six nurses to every 100 men.[26] One male nurse, Richard Palmer, later became an assistant. A complement of similar size is listed on *Britannia* and of about half the size on the smaller *Chester* and *Enterprize*.[27]

YEAR	MONTH	LOCATION	FLEET MOVEMENTS
1740	October November December	Spithead At Sea Dominica	Sailed 26 October 19 to 27 December
1741	January & February March to May June July to November December	Jamaica Cartagena Jamaica Santiago de Cuba At Sea	Arrived 9 January Returned 19 May Sailed 30 June Departed 28 November
1742	January & February March April onwards	Jamaica Porto Bello Jamaica & At Sea	Departed 3 April
1743	January	*Princess Royal* returned home	
1744	July	*Scarborough* returned home	

Table 2: Hospital Ships in the West Indies, 1740-44.[28]

[24]Christopher Lloyd and Jack L.S. Coulter, *Medicine and the Navy 1200-1900*, Vol. III, (Edinburgh: Livingstone, 1961), pp. 67-68.
[25]From 1 October 1746, by order of the Navy Board, the nurses and washerwomen in this ship were no longer victualled with the rest of the surgeon's company and were only recorded in pay books. It is not recorded where the women were drawn from.
[26]TNA ADM 106/938/232 Navy Board, In-letters, Richard Hughes, Portsmouth. Receipt of warrant to allow six nurses to every hundred men, 1 May 1741.
[27]References to individual ships are henceforth given in relevant Tables.
[28]Location of hospital ships from Admiralty musters (Table 1); dates of fleet movements from William L. Clowes, *The Royal Navy: From the Earliest Times to the Present, Vol. III,* (London: Sampson Low, Marston, 1898), pp. 63-80.

Among the sea-going vessels were two converted storeships, purchased in 1739, which served in the West Indies (Table 2). *Scarborough* had a surgeon, his servant, mates (4) and one washerman. *Princess Royal* initially had six mates of whom two were discharged to *Blenheim* and not replaced before sailing. Musters and pay books show no sign of any assistants, helpers or nurses. However, they do contain some useful information about the numbers of sick men from other ships taken on board, and their various fates.

The voyage across the Atlantic was blighted by infectious diseases, notably dysentery.[29] Between 28 October 1740 and 20 January 1741, *Scarborough* received 197 men of whom no fewer than 65 (33%) died, before those remaining were discharged in early February to their ships or to the hospitals at Port Royal, Jamaica. *Scarborough* then received 194 convalescent patients from Port Royal, most of whom would be discharged by mid-March. Some warships were especially badly affected: on 30 December 1740, 40 sick men from *Boyne* were received on *Princess Royal*; of these, 23 (58%) died and the rest would be discharged by early March 1741. In home waters during August and September 1740, by contrast, of 56 sick men taken aboard by *Princess Royal*, only four (7%) died.

The joint attack on Cartagena, a South American city in what is now Colombia, between March and May 1741, was a devastating failure owing to friction between naval and military commanders. By 25 March, 500 troops had already died and 1,500 more had fallen sick of disease, especially yellow fever which was endemic.[30] Sick soldiers were squeezed onto transports lacking medical equipment and medical personnel, which were also short of provisions. Naval surgeon, witness and author Tobias Smollett described patients left to fester in appalling conditions, and the naked bodies of the dead being thrown overboard, where they became prey for sharks and carrion fowl.[31]

Loss of life was huge. In his essay on yellow fever, Dr John Hume, then surgeon in charge of the naval hospital at Port Royal, Jamaica stated that, during 1741 and 1742, 11,800 sick men were sent to the Jamaican hospitals of whom 1,653 (14%) died. He estimated 7,000 had yellow fever of which 1,500 (22%) died.[32] An analysis of the

[29]Ibid., pp. 63-64.

[30]Ibid., pp. 67-80. Clowes asserts that the sick soldiers were put on board the two naval hospital ships but there is no evidence for this in the musters.

[31]G.A. Kempthorne, 'The Expedition to Cartagena, 1740-1742', *Journal of the Royal Army Medical Corps,* Vol. 64, No. 4 (1940), pp. 272-278.

[32]John Hume, 'An account of the true bilious, or yellow fever; and of the remitting and intermitting fevers of the West Indies'. In: *Letters and essays on the small pox and inoculation, the measles, the dry belly ache, the yellow, and remitting, and intermitting*

muster books belonging to the majority of the ships which served at Jamaica in 1741, but excluding the hospital ships, calculated that, from a total complement of 19,800 men, there were at least 3,500 (18%) deaths from all causes. The mortality rate on individual ships varied with several losing as many as 40% of their men.[33]

Between 16 March and 5 May 1741, *Princess Royal* received 112 sick men; of these at least 34 (30%) died at Cartagena, at sea, or at Port Royal. In the subsequent action at Cumberland Harbour, Cuba between 14 July and 2 December, the ship received 60 sick men, including 25 from *Worcester*, of whom 18 (30%) died there or at sea. Then, in January 1742, the hospital ship picked up sick men from the fleet and transferred them to hospital ashore about a week later. Between July and October, the ship bore convalescents discharged from the shore hospital. Finally, *Princess Royal* set off for England carrying 29 invalids, of whom 7 (24%) died on the return journey. The remainder were mostly sent to hospitals at Deal or Woolwich in January 1743.

It should be noted that the naval hospital ships in the West Indies were not reserved exclusively for sick or convalescent seamen. Muster records show that they were occasionally used to transport small numbers of marines, British Army officers and their servants, American officers and soldiers, Frenchmen and Spanish prisoners.

Sutherland served as hospital ship to the fleet in the Mediterranean (Figure 2). The ship arrived at Port Mahon's naval hospital in Minorca in January 1742 with the surgeon and his servant, mates (2), assistants (3) and washerwomen (4), and was joined in April by Dr Lidderdale and his servant. In summer *Sutherland* changed base to Villa Franca (Villefranche) and returned to Mahon in September. From June to December 1743, the ship took the fleet's sick and hurt men aboard at Hyères and, after spending the end of the year at Mahon, returned to the fleet at Hyères with recovered men in time for the battle of Toulon on 11 February 1744.[34]

fevers of the West Indies, (London: Printed for J. Murray, 1778), pp. 195-264, especially pp. 241-244

[33]Duncan Crewe, *Yellow Jack and the worm: British naval administration in the West Indies, 1739-1748*, (Liverpool: Liverpool University Press, 1993), pp. 63-75.

[34]Clowes, *The Royal Navy, Vol. III*. pp. 92-102.

Figure 2: *Sutherland* Hospital Ship.[35]

After spending the summer in Vado Bay off Vado Ligure, Italy and later at sea, *Sutherland* was paid off at Mahon in March 1745. The physician, and the surgeon with much of his complement, were transferred to *Rochester*, which spent May to July at Livorno, Italy and then at sea, before operating from Gibraltar until August of the following year when most of the remaining medical staff were discharged before the ship's return to England. On this voyage the ship carried 55 invalided seamen from 15 ships of the fleet: eight died, six were discharged 'unserviceable', and 41 were moved to *Blenheim* on 12 October 1746. Five of these were later discharged to hospitals in London.

The *Apollo* hospital ship, a re-fitted former French East Indiaman, carried five women nurses as part of the surgeon's complement on sailing for the East Indies in November 1747, all of whom were still aboard at Calcutta a year later.[36] *Dolphin*, designated as

[35]Royal Museums Greenwich. PAD8497. Drawing made while the ship was attached to the Mediterranean fleet, c. 1744. Credit: © National Maritime Museum, Greenwich, London.

[36]Ibid., pp. 130-132.

both a store and hospital ship, appears to have carried only a surgeon, his servant and one mate.

The Seven Years' War

The quartering system of care in private homes was convenient when ships were close to home and sick seamen could be landed nearby. However, it was liable to flaws including fraud, high cost, inadequate care, public health risks and manpower loss from malingering and desertion. Small naval hospitals ashore, including the first at Plymouth, had been set up in the seventeenth century, followed by more in Deal, Gosport and Rochester during the War of The Spanish Succession. Abroad, naval hospitals, both government-built and run under contract, were set up notably in Jamaica, Lisbon, Gibraltar, Minorca and Naples. The great naval hospitals of Haslar (Gosport) and Stonehouse (Plymouth) began admitting patients as early as 1753 and 1760, respectively.[37]

During The Seven Years War (1756-63), despite the advent of the new home hospitals, additional accommodation had to be provided by hospital ships at the major ports (Table 3). Larger second- to fourth-rate vessels, of 50-90 guns and 1,000-1,500 tons, were converted, as had happened a decade previously. *Blenheim* was commissioned for a second time at Portsmouth, *Rupert*, *Ruby* and *Canterbury* at Plymouth, and *Princess Caroline* at Sheerness. A smaller vessel, *Phoenix*, was located at Tower Wharf.

SHIP	YEARS	TYPE	TONS	MEN	WHEN	WHERE	TNA RECORDS
Princess Caroline	1731-64	80/2	1,353	33	1755-62	Sheerness	36/7145
Rupert	1740-67	60/4	1,070	n/s	1755-62	Plymouth	36/7177
Blenheim	1706-63	90/2	1,557	32	1756-61	Portsmouth	36/7138
Ruby	1745-65	50/4	989	n/s	1756-62	Plymouth	36/7176
Canterbury	1744-70	60/4	1,117	27	1757-63	Plymouth	36/7145
Phoenix	1743-62	20/6	515	10/16	1757-62	Tower Wharf	36/7173
Thetis	1747-67	44/5	720	100	1757-58	Mediterranean	33/691 36/6862

Table 3: Principal Hospital Ships, 1755-63.[38]

[37]Kathleen Harland. 'Naval Medical Care 1620-1770', *Journal of the Royal Naval Medical Service,* Vol. 91 (2005), pp. 64-82; E. Birbeck. 'The Royal Hospital Haslar: from Lind to the 21st century', *Journal of the Royal Naval Medical Service,* Vol. 98 (2012), pp. 36-38.
[38]Details as in footnote to Table 1 (See Fn 22).

The ships' medical complements varied one from another and with time. *Blenheim* usually carried surgeon's mates (3-4) and assistants (5-6) but nurses and washerwomen are not mentioned in the musters.[39] The three hospital ships at Plymouth typically had fewer mates (2-3) and assistants (2-3) but a good number of women nurses (8-9). *Princess Caroline*, by contrast, appears to have made do with mates (2-3) and male helpers (3-4), although some women nurses appear to have been hired briefly in July 1758. There is no indication of the relevant personnel in *Phoenix*.

Thetis spent the second half of 1757 in home waters before serving in the Mediterranean during 1758. The ship began the year with a surgeon, servant, mates (2) and assistants (5), mostly landsmen and ordinary seamen, and a single woman nurse. Dr Walter Farquharson, who would later be appointed 'First Commissioner of the Sick and Wounded Seamen and for Exchanging Prisoners of War', had been appointed physician.[40] In January 1758, 114 French prisoners from the *Providence*, a privateer, that had been taken by the *Monmouth* were sent on board. One appears to have been made a surgeon's assistant, while the remainder were discharged on 7 February to a cartel, a ship which exchanged prisoners in time of war. On 14 February, *Thetis* received eight sick men from *Swiftsure*, discharging them to Gibraltar's naval hospital a week later.

By 27 April, there were more assistants (6), women nurses (6) and washermen (6), and a baker was also on board. Twenty-eight sick men from a cartel were received from *Revenge* on 29 April. A further 56 followed from the same ship on 16 May, and 30 prisoners from the French *Foudroyant* on 18 May. The majority of the sick and prisoners were transferred to *Revenge* on 27 May. Only one nurse remained after July, and the entire medical establishment was discharged shortly after 28 December.

Winfield cites the 44-gun fifth-rate *Crown* (1747-70) as a hospital ship in 1761; musters suggest that this ship was fitted as a storeship but may also have acted occasionally as a hospital ship. On 7 October 1759, for example, the ship received 25 invalids from the hospital at Halifax, Nova Scotia and returned them to Portsmouth the following month.[41]

Hospital Ships of the 1770s and 1780s

Large hospital ships continued to be stationed at home ports during the American Revolutionary War (1775-83) and the Anglo-French War (1778-83) as shown in Table 4. *Tiger,* a Spanish prize, and *Orford* were at Plymouth and Sheerness respectively.

[39]See Fn 25.
[40]TNA ADM 6/22/228, Admiralty, Service Records, Dr Walter Farquharson, 1781.
[41]TNA ADM 36/5215-17, Admiralty, Royal Navy Ships' Musters, *Crown*, 1759-62.

Nightingale at Tower Wharf had briefly served as a hospital ship in 1770-71.[42] *Mars*, previously a prison ship, was designated for the use of convalescing patients at Portsmouth. Two storeships, *Lioness* and *Nabob*, were purchased to act as additional convalescent ships at Portsmouth and Sheerness. A third purchased vessel, the sloop *Lynx*, operated as a hospital ship in the Solent, variously anchored off Spithead or St Helen's Roads, east of the Solent.

SHIP	YEARS	TYPE	TONS	MEN	WHEN	WHERE	TNA RECORDS
Nightingale	1746-83	22/6	522	10-19	1776-83	Tower Wharf	36/8435-38
Jersey	1736-83	60/4	1,065	140	1776-80	New York	34/430 36/8571-74
Orford	1749-83	70/3	1,415	46-51	1777-83	Sheerness	36/10150
Tiger	1762-84	74/3	1,886	47	1778-83	Plymouth	36/10150
Lioness	1777-83	26/unr	711	72	1780-83	Portsmouth	36/10150
Lynx	1777-83	16/unr	324	55/56	1780-83	Channel	34/469-70 36/10031
Mars	1759-84	74/3	1,556	72	1780-83	Portsmouth	36/9712
Nabob	1777-83	26/unr	637	72/73	1780-83	Sheerness	36/10150

Table 4: Principal Hospital Ships, 1775-83.[43]

The establishment in *Tiger* included the surgeon and his servant, a clerk, mates (4), washermen or washerwomen (4), helpers (2), and one nurse to every 14 sick men (Figure 3). By April 1779 there were seven nurses, and the number was maintained at this level by replacing any who had been discharged. This suggests that about 100 men were cared for. *Orford* appears to have been run along the same lines with a similar number of nurses on board at the end of 1777. On this ship, several nurses were discharged during the year; one became a washerwoman, and another was re-engaged as a nurse.

[42]TNA ADM 36/7190, Admiralty, Royal Navy Ships' Musters, *Nightingale*, 1770-71.
[43]Details as in footnote to Table 1 (See Fn 22).

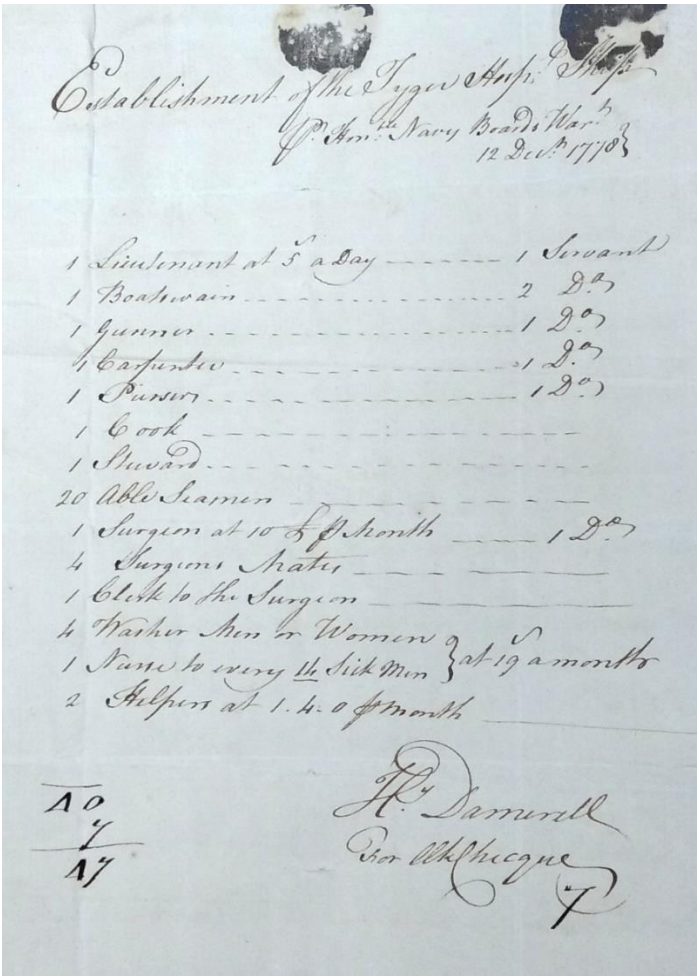

Figure 3: Establishment of the *Tiger* Hospital Ship.[44]

In the eighteenth century, officers and men of the Navy, including the crews of hospital ships, were given a specific ration of victuals by the Victualling Commissioners. For the sick and wounded in hospital ships a contract was made between the Commissioners and the ship's purser at so much a head irrespective of diet. After 1762, this role was taken over by the Commissioners for Sick and Wounded (or Sick and Hurt Board). Patients on the *Nightingale* might be victualled on a low, half or full diet. Nurses were

[44]Attached to the ship's muster referenced in Table 4.

victualled in the same manner as sick men on full diet and their wages were paid by the Navy Board. The purser was allowed 'elevenpence per man a day for every sick Seaman or Marine, and likewise the same for every nurse'.[45]

Dr John Lind, who succeeded his illustrious father James as Physician at Haslar in 1783, recalled that the hospital had 1,800 beds, of which 480 were in garret wards only suited to convalescents, such that 300 extra beds had to be placed in lobbies and other spaces to accommodate patients coming from the fleet. At the beginning of 1780, there were more than 2,400 men in the hospital. To relieve the pressure, *Mars*, in which patients lay in hammocks instead of cradles 'for the sake of holding a greater number', and *Lioness* were added to the hospital establishment. The former held 400 men, the latter 200. By contrast, the relief obtained from private quarters had been 'comparatively but a small one'.[46]

Sir Gilbert Blane, who is credited with vastly improving the health of seamen in the 1780s and 1790s by implementing basic hygiene measures, ensuring the supply of necessary medicines and – not least – providing fruit and vegetables to prevent scurvy, accompanied Rodney's fleet to the West Indies as physician in 1779.[47] Subsequently Blane made several recommendations in a Memorial to the Board of Admiralty, including strict regulations to enforce cleanliness, the separation of diseases, and an allowance of adequate space for each man. Tellingly, he added: 'I would farther propose that hospital ships be established for the reception of the sick or recovering. I know from extensive experience and close observation, that these circumstances are more essential than even medicine and diet'.[48]

Jersey, a hospital ship during the American Revolutionary War sailed for America in May 1776 carrying the ship's surgeon, his servant and mates (4), plus physician Thomas Poole and his servant, and arrived off Staten Island in August. In early September, male nurses (6) and washerwomen (4) were brought on board. By the end of 1777, two of the nurses had died and three had deserted. Dr Poole died in May 1778, by which time the ship's original complement of 140 had reduced by half. Musters show that the ship carried invalids between August and December 1778, and hundreds of American and

[45]H.R.H. Vaughan. 'Hospital ship victualling in the later eighteenth century', *Journal of the Royal Naval Medical Service,* Vol. 8, No. 4 (1922), pp. 299-300.
[46]Sir Gilbert Blane, *Select Dissertations on Several Subjects of Medical Science*, (London: T & G Underwood, 1822), pp. 47-50.
[47]Mary Wharton, 'Sir Gilbert Blane Bt (1749-1834)', *Annals of the Royal College of Surgeons of England*, Vol. 66, No. 5 (1984), pp. 375-376.
[48]Gilbert Blane, *Observations on the diseases incident to seamen*. (London: John Murray, 1785), pp. 329-341.

French prisoners from March 1779. The surgeon and his remaining staff were discharged on 25 December 1780.

After a career begun in the 1740s, which ranged from Cartagena to the Mediterranean, *Jersey* ended as a prison hulk.[49] 'Old Jersey,' or 'Hell' as the ship was commonly called, was the most notorious of the British prison ships in Wallabout Bay (now home to the Brooklyn Navy Yard) where prisoners from captured American privateers were kept (Figure 4).[50] There is evidence to suggest that prisoners may have received medical attention while *Jersey* was still, officially, a hospital ship.[51] However, as a floating dungeon the ship housed more than a thousand inmates under the most inhumane conditions, and is thought to have killed more Americans through disease than died in combat during the entire war.[52]

Figure 4: *Jersey* Hospital Ship.[53]

[49]Charles I. Bushnell. 'The prison-ship "Jersey",' In: *A Memoir of Eli Bickford: A Patriot of the Revolution,* (New York: privately printed, 1865), pp. 13-15.
[50]Henry R. Stiles. *A History of the City of Brooklyn, Vol. I*, (Brooklyn: by subscription, 1867), pp. 331-376.
[51]Maurice Bear Gordon, *Naval and Maritime Medicine during the American Revolution*, (Ventnor: Ventnor, 1978), pp. 106-111.
[52]Robert P. Watson. *The Ghost Ship of Brooklyn: An Untold Story of the American Revolution*, (Boston: Da Capo Press, 2017).
[53]The British hospital ships: the "Jersey" in the foreground. From 'The prison-ship martyrs', New York Public Library Digital Library.

Winfield records other hospital ships: the 60-gun fourth-rate *Pembroke* (1757-93) commissioned as a hospital ship at Halifax, Nova Scotia in 1776; the 74-gun third-rate *Warspite* (1758-1801) as a receiving and hospital ship at Portsmouth in 1780; and 18-gun sloop *Renard* (1780-84) as a convalescent ship at Antigua in 1782-83.[54] Surviving musters and pay books give no indication that these vessels were designated as hospital ships or carried additional medical staff. However, as noted earlier, sick or convalescing men might be borne briefly on other vessels in cases of need. For example, the 10-gun sloop *Hunter* (1756-80) at Boston, Massachusetts from late August to early September 1775 reportedly served as a hospital ship for smallpox patients at the time of an onshore epidemic.[55]

From 1790 to 1815

In peacetime, hospital ships were established at some ports as a cheaper alternative to shoreside hospital accommodation. The Navy Board chose and fitted out the ships, the Sick and Hurt Office supplied the medicines and surgeons, but the sick seamen were the responsibility of the commander-in-chief of the port. The Admiralty opposed plans to build additional hospitals in the 1790s on the grounds of cost, although the Sick and Hurt Board provided evidence that hospital ships were more expensive in the long run than shore hospitals. In the end, believing that low decks made it difficult to keep the air on board sufficiently pure, the Sick and Hurt Board recommended the use of two-deck rather than single-deck ships.[56]

Hospital ships had their heyday, certainly in numerical terms, during the period 1790 to 1815, which included the French Revolutionary War (1793-1802), the Napoleonic War (1803-15) and the War of 1812 with the United States (1812-15) - a period when naval manpower expanded considerably. Men-of-war captured from enemies were converted to hospital ships, some while still afloat and retaining their armaments, although these seem to have taken no active part in engagements. In addition, obsolete warships were converted to accommodate convalescent patients, were permanently stationed at naval ports, received injured from the fleet, and served as an adjunct to

[54]Winfield, *British Warships, 1714-1792*.

[55]TNA ADM 36/7870, Admiralty, Royal Navy Ships' Musters, *Hunter*, 1774-77; ADM 354/189/306, Navy Board, Out-letters, Philip Stevens, 12 January 1775; Ann M. Becker. 'Smallpox at the Siege of Boston', *Historical Journal of Massachusetts*, Vol. 45, No.1 (2017), pp. 43-75.

[56]Pat Crimmin, 'The Sick and Hurt Board: Fit for Purpose?', In: David Boyd Haycock and Sally Archer (eds), *Health and Medicine at Sea, 1700-1900*, (Woodbridge: Boydell, 2009), pp. 90-107.

local hospitals and hospital ships. They also acted as prisons housing sick and wounded men from captured French, Spanish, Danish and American ships.[57]

SHIP	YEARS	TYPE	TONS	MEN	WHEN	WHERE	TNA RECORDS
Roebuck	1774-1811	44/5	886	100 120	1790-91 1793-94	Off Spithead West Indies	35/1515 36/10959 102/246 35/1516 36/11846-47
Dolphin	1781-1817	44/5	881	100-120	1793-99	Mediterranean	35/535 36/12337-41 36/14884
Charon	1783-1805	44/5	890	120/135	1793-95	Channel	35/292 36/11831-33
Medusa	1785-98	50/4	920	115-118	1797-98	Channel	35/1074 36/13400 102/576
Gorgon	1785-1817	44/5	911	121	1808-15	Baltic (1808-11) Mediterranean (1811-14) America (1814-15)	35/2819 & 3486 37/1935-36 37/2559-60 102/241 35/2819 & 3486 37/2560 & 3571 37/4296-97 35/3486 37/5297 102/242

Table 5: Principal Sea-going Hospital Ships, 1790-1815.[58]

Table 5 shows that the principal sea-going hospital ships during the period were generally fourth- or fifth-rates of approximately 900 tons and crewed by about 120 seamen. Each bore about 17 medical staff, typically including a matron, nurses (6) and washerwomen (4), several male assistants (up to 5) variously described as surgeon's assistants, hospital assistants or hospital men, and a baker. The complement of hospital attendants, which varied in number and composition at different times, was in addition to the ship's surgeon and mates. Moreover, a physician was appointed to each ship (Table 6).

[57]Admiralty, *Statistical Report of the Health of the Navy for the Year 1902*, (London: H.M.S.O., 1903), pp. 140-141.

[58]Details as in footnote to Table 1 (See Fn 22).

SHIP	PHYSICIAN	APPEARANCE	DISCHARGED
Roebuck	Gilbert Blane	1790, 16 October	1791, 3 September?
Dolphin	John Harness	1793, 13 May	1799, 10 July
Charon	Thomas Trotter	1794, 4 April	1795, 29 November
Medusa	Thomas Trotter	1797, 15 February	1798, 16 March
Gorgon	John Jamison William Burnett Alexander Denmark D.J.H. Dickson	1808, 7 June 1812, 7 June 1814, 27 March 1814, 17 December	1812, 21 January 1814, 21 January 1814, 16 September 1815, 12 February

Table 6: Hospital Ship Physicians, 1790-1815.[59]

Roebuck was converted into a hospital ship in 1790 but only 24 patients were listed on board between August and July 1791 and the ship was paid off on 3 September. Recommissioned in 1793, at the end of the year *Roebuck* sailed for the West Indies carrying staff of the General Army Hospital and took part in a joint naval and military expedition against French colonies during the first half of 1794, transporting sick and wounded soldiers, troops, women and children, and prisoners.[60] *Dolphin* was with Howe's fleet in the attack on Toulon in August 1793 and at the capture of Minorca in November 1798.[61] *Charon* and *Medusa* served at different times with the Channel Fleet and their service under Physician to the Fleet Thomas Trotter is considered further below.

In the Baltic, *Gorgon* had a medical staff of up to 20, comprising the physician and his servant, the surgeon and his clerk, assistant surgeons (4), a matron, nurses (4) and landsmen (7), and a similar complement in the Mediterranean, principally at Port Mahon, Minorca, and later in America. During the campaign in the Gulf of Mexico, the medical staff treated dozens of casualties, including seamen, soldiers and prisoners of war after the attack at Lake Borgne on 14 December 1814 and the Battle of New

[59]Details from muster and pay books quoted in Table 5.
[60]William L. Clowes, *The Royal Navy: From the Earliest Times to the Present, Vol. IV,* (London: Sampson Low, Marston, 1899), pp. 246-249.
[61]Ibid., pp. 203, 377.

Orleans on 8 January 1815.[62] The surgeon at the time, William Boyd, later wrote an account of these voyages, cases encountered, and treatments used.[63]

Table 7 shows a list of other hospital ships of the period for which musters or pay books are held at TNA.[64] The major ports of Portsmouth and Plymouth each had two or more hospital and convalescent ships. Some were prize ships: the French *Pégase* and *Caton,* which served as hospital ships for British sailors and prisoners of war alternately, and the Dutch ships renamed *Tromp* and *Prince Frederick*. The Spanish prize *Grana* served as a convalescent ship at Sheerness. Several large prison hospital ships including *Victory*, later famed as Nelson's flagship, were located off Chatham and the Medway.[65] Other vessels served as hospital ships off Tower Wharf and at Woolwich, Cork, Liverpool and abroad.

Winfield notes 16 more vessels, *Alfred, Centurion, Discovery, Duke, Falcon, Hornet, Iphigenia, Jupiter, Lizard, Magnanime, Panther, Renown, Romulus, Sagesse, Spiteful* and *Winchelsea*, which appear to have acted in various capacities, including lazarettos, convict ships and army hospital ships, at home and abroad.[66]

[62]William L. Clowes, *The Royal Navy: From the Earliest Times to the Present, Vol. VI,* (London: Sampson Low, Marston, 1901), pp. 148-150.

[63]William Boyd, 'Occurrences on Board H.M. Hospital-Ship Gorgon, between the 18th of September, 1814, and the 8th of May, 1815', *Medico-Chirurgical Journal and Review*, Vol. 5, No. 25 (1818), pp. 16-25.

[64]Hospital ships identified from TNA index showing dates of records held; details of likely location, years of naval service, type and tons as built, and comments from Rif Winfield, *British Warships in the Age of Sail, 1793-1817*, (Barnsley: Seaforth Publishing, 2005). At this time some smaller ships began to be rated by function or rig.

[65]W.J.L. Wharton, *A short history of H.M.S. 'Victory' gathered from various sources*, (Portsmouth: Griffin & Co, 1884), pp. 29-30.

[66]Winfield, *British Warships, 1793-1817*; a lazaretto was a ship set apart for the purposes of quarantine.

SHIP	DATES	LOCATION	YEARS	TYPE	TONS	COMMENT
Hospital Ships						
Africa	1798-1800	Sheerness	1781-1814	64/3	1,415	
Antelope	1815-16	Portsmouth	1802-1845	50/4	1,107	
Argonaut	1797-1828	Chatham	1782-1831	64/3	1,452	French prize
Batavier	1809-17	Woolwich	1799-1823	54/4	1,048	Dutch prize
Britannia	1799-1800	Portsmouth	1762-1812	100/1	2,091	
Caton	1790/94-99	Plymouth	1782-1815	64/3	1,407	French prize
Conflagration	1790-93	Portsmouth	1783-1793	fireship	426	
Courser	1800	Woolwich	1797-1803	brig	168	
Engageante	1795-1801	Cork	1794-1811	38/5	931	French prize
Enterprize	1790-1806	Off the Tower	1774-1807	28/6	594	
Enterprize	1806-16	Off the Tower	1806-1816	28/6	603	ex-*Resource*
Matilda	1800-09	Woolwich	1794-1810	28/6	573	French prize
Pegase	1790/94-97, 1803-05/ 08-09	Portsmouth	1782-1815	74/3	1,778	French prize
Princess	1807-16	Liverpool	1795-1816	28/6	677	Dutch prize
Spanker	1795-1802	Sheerness	1794-1810	battery	1,064	
Standard	1800	Sheerness	1779-1816	64/3	1,369	
Sussex	1801-16	Sheerness	1802-1816	90/2	1,781	ex-*Union*
Trent	1803-16	Cork	1796-1823	36/5	926	
Tromp	1803-10	Portsmouth & Falmouth	1796-1815	54/4	1,040	Dutch prize
Union	1790-91, 1793-1802	Chatham & Sheerness	1756-1802	90/2	1,781	see *Sussex*
Wilhelmina	1803-12	Prince of Wales Island, Penang	1798-1813	32/5	827	Dutch prize
Convalescent						
Chatham	1790,1793-1802	Plymouth & Falmouth	1758-1810	50/4	1,052	
Gladiator	1793-1802, 1807-14	Portsmouth	1783-1817	44/5	882	
Grana	1793-1800	Sheerness	1781-1806	28/6	528	Spanish prize
Prince Frederick	1800-04, 1809	Plymouth	1796-1817	64/3	1,267	Dutch prize
Sultan	1794-96	Portsmouth	1775-1805	74/3	1,615	
Triton	1810-13	Plymouth	1796-1820	32/5	856	
Prison Hospital						
Bristol	1790-1803	Chatham	1775-1810	50/4	1,049	
Buckingham	1800-02	Medway	1800-1812	64/3	1,372	ex-*Eagle*
Eagle	1798-1800	Medway	1774-1800	64/3	1,372	see above
Trusty	1809-11	Chatham	1782-1815	50/4	1,088	
Victory	1797-99	Chatham	1765-date	100/1	2,162	

Table 7: Other Hospital Ships, 1790-1815 (See Fn 64).

Hospital Ship to the Fleet

The most comprehensive account of the work undertaken by a hospital ship to the fleet at this period was written by the physician Thomas Trotter (Figure 5) in his *Medicina Nautica*.[67] On 3 April 1794, Trotter was appointed physician to His Majesty's fleet and the next day embarked on the hospital ship *Charon*. From 2 May, with the fleet at sea, *Charon* received sick seamen and fever-stricken French prisoners. After the Battle of the Glorious First of June, when approximately 300 British officers, seamen and marines were killed, and 800 more wounded, the fleet returned home to land the sick and injured.[68]

Charon arrived at Spithead on 13 June, took on board provisions, including vegetables, fruit, pickles, eggs, porter, milk etc. Cases of fever continued to be received until the fleet moved to St Helen's Roads on 22 August, whereupon all patients were sent ashore to clear the ship for sea-service. On 27 September, following damage sustained during heavy gales, *Charon* needed to return to Plymouth for repair and refit, and took home the whole of the fleet's sick, some 70 in number.[69]

While *Charon* was laid up, Trotter visited the Portuguese fleet, that had recently arrived in the Hamoaze to refit, and which was affected by a serious contagion. On inspecting *Europe*, designated and fitted as a hospital ship, he found 500 patients in different stages of fever – 'a hideous groupe of human misery' – crammed into the lower gun-deck and overflowing into other parts of the ship, the orlop deck 'literally pestiferous' and the fore and aft cockpits 'strongly charged with contagious matter'.[70] Convalescents on the upper deck, exposed to cold and wet, were prone to relapse. The Admiralty Board immediately ordered another hospital ship, and one of the squadron's own ships to be appropriated to house convalescents.[71]

The *Charon* returned to Torbay on 3 November carrying men who were fit to rejoin their ships. The ship then received the sick of the fleet, mainly suffering from diseases of the season (catarrhs, rheumatisms etc.), until the fleet returned to Spithead later in the month.[72] In the spring of 1795 *Charon* supplied the squadron of Admiral Colpoys with lemon juice, with the result that no deaths from scurvy occurred during a month-long cruise in the Channel.[73] *Charon* continued to supply each of the fleet's ships with

[67]Brian Vale and Griffith Edwards, *Physician to the Fleet: The Life and Times of Thomas Trotter 1760-1832*, (Woodbridge: Boydell & Brewer, 2011).
[68]Thomas Trotter, *Medicina Nautica,* (London: Cadell and Davies, 1797), pp. 64-74.
[69]Ibid., pp. 77-97.
[70]Ibid., pp. 98-100.
[71]Ibid., pp. 101-102.
[72]Ibid., pp. 103-104.
[73]Ibid., pp. 116-122.

a large allowance of fruit and 30 gallons of juice in kegs; a further 250 gallons were retained on board to cover unexpected eventualities. The seamen's satisfaction with their vastly improved diet led them to call *Charon* 'the Doctor's Garden'.[74]

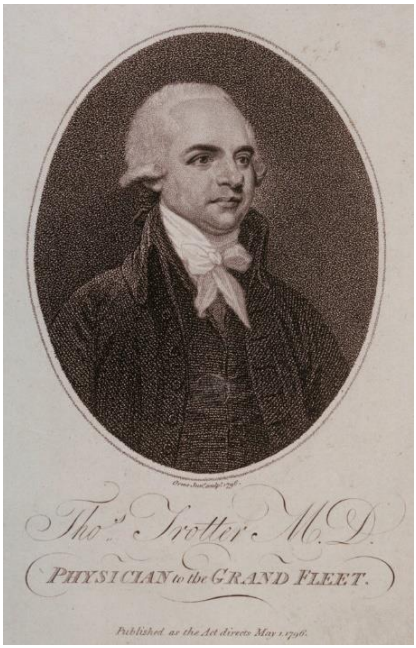

Figure 5: Thomas Trotter, M.D., Physician to the Grand Fleet.[75]

Charon sailed again with the fleet, leaving Spithead for Ushant on 12 June 1795. Forty-five wounded men of the fleet, including Captain Grindall of the *Irresistible* who had been severely wounded in the Battle of Groix on 23 June, were transferred from their ships to the hospital ship.[76] *Charon* sailed for England on 9 July, put into Weymouth on 15 July to drop Grindall at his home, and next day delivered the remaining patients to Haslar hospital. Resupplied, the ship left on 5 August and re-joined the fleet 10 days later. The sick and infirm of the squadron having been brought on board, the ship returned to Spithead, discharging all patients on 3 September. After a further round

[74]Ibid., pp. 131-134.
[75]Portrait of Thomas Trotter. Engraving by Daniel Orme, 1796. Credit: Wellcome Collection. Attribution 4.0 International (CC BY 4.0).
[76]Clowes, *The Royal Navy, Vol. IV*. pp. 260-261.

journey in October, on 16 November *Charon* was ordered to receive troops for passage to the West Indies, and the medical staff were paid off to join another ship.[77]

On 18 December 1796, Trotter was ordered on board the hospital ship *Medusa* at Plymouth. During 1797, the ship conveyed and distributed dietary stores and surgeons' necessaries to the fleet, received the worst cases from other ships, and transported them back to England.[78] Between 9 May and 27 October, the musters of sick and hurt seamen record 300 entries: the great majority were discharged to their ships or to the hospitals at Plymouth and Haslar; the bodies of the small number who died were either discharged to hospital or thrown overboard without ceremony.

During the year, the fleet had been afflicted by a malignant and apparently contagious disease characterised by ulcers of 'a most obstinate nature' that did not respond to the usual remedies.[79] The contagion recurred in great numbers in 1798, and Trotter observed that 'the first thing to be done for the relief of the unfortunate sufferer ought to be immediate removal from the ship' to protect the rest of the crew.[80] Unfortunately, *Medusa* had been dismissed in March.[81] Deprived of his primary means of communicating with the fleet, Trotter lamented that he appeared 'rather the historian of the afflictions of the sick, than their physician'.[82]

Conclusions

The first documented British hospital ship in 1620 was a hired storeship carrying 'sick comforts' which took sick seamen from the king's ships for brief periods. Hospital ship use increased in the late seventeenth century, mainly in home waters during wartime, whether victualling the fleet, or carrying surgeons and medical care, or transporting sick and wounded seamen to shore. Although the value of having a dedicated hospital ship to segregate cases of contagious disease was recognised at an early stage, no regular or consistent action was taken, even for overseas expeditions.

Improvements were made in the early eighteenth century when regulations were laid down for the provisioning and fitting-out of hospital ships, and when the surgeon's complement was enlarged. Over that century, and as and when required, the role of hospital ships was extended and adapted alongside developments in naval organisation and medicine. There is little to suggest that fundamental changes took place in the nature of the vessels employed, or in how they were adapted and staffed. However,

[77]Trotter, *Medicina Nautica*, Vol. I, pp. 134-151.
[78]Trotter, *Medicina Nautica*, Vol. II, (London: Longman and Rees, 1799), pp. 11-31.
[79]Ibid., pp. 170.
[80]Ibid., pp. 178-180
[81]Vale and Edwards, *Physician to the Fleet*, p. 127.
[82]Trotter, *Medicina Nautica*, Vol. III, (London: Longman and Rees, 1803), p. 13.

between 1790 and 1815, more ships fulfilled a wider variety of functions at more locations, and prize ships were used more frequently.

The 1740s saw larger vessels acting as stationary hospital ships in the main naval ports, initially as an alternative to the quartering system, and later as an adjunct to the naval hospitals, which were sometimes overwhelmed by the numbers of sick and wounded following significant sea battles or military expeditions abroad. In the late 1770s, ships specifically designated for the use of convalescent patients further relieved the pressure on shoreside hospitals, while from the 1790s, some were used as hospital ships for prisoners of war. Throughout the period, other vessels, especially storeships, briefly doubled as hospital ships in a manner reminiscent of the early 1600s.

The surgeon's complement aboard a hospital ship, in terms of the numbers of mates, assistants, helpers or nurses, and laundresses/washerwomen or washermen, varied according to the vessel's size and function. Sometimes it closely approached the regulation numbers, but there was significant variation, probably resulting from different naval needs, staff availability and the surgeons' preferences. The use of laundresses was inconsistent: they were replaced by washermen in the 1730 regulations but employed again as washerwomen from the 1740s. From this time, too, women nurses were commonly found, often on hospital ships in port, and increasingly aboard sea-going vessels.

The characteristics of hospital ships appear to have been malleable; not all vessels so designated bore a full surgeon's complement, and seagoing hospital ships combined treatment of the sick and wounded with the transport of convalescing patients and invalids. As naval vessels, they were fungible assets that could be fitted, redeployed or re-commissioned as required. Although the records of ships' musters and pay books are neither complete nor infallible, this study has shown that they do provide valuable information about where, when and how hospital ships were used, about their physicians, surgeons and hospital staff, and the number, origin and nature of the patients for whom they cared.

The utility of hospital ships can be illustrated no better than by considering their value at sea at the end of the eighteenth century. They would take sick or wounded men from ships of the fleet, care for them until they were fit to return to their own ships or convey them to a naval hospital. Afloat, they could facilitate the convalescence of patients no longer required to remain in hospital and return recovered men to the fleet. Re-stocked with essential foodstuffs – the 'doctor's garden' – and medical necessities, they would keep the surgeons of the fleet regularly supplied and helped to ensure that their charges remained fighting-fit at sea.

First World War Canadian Operational Research

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ABSTRACT
This article examines the operational research conducted by the Canadian Corps Gas Services and the Canadian Machine Gun Corps during the First World War. It develops the initial inquiry completed by scholars J.S. Finan and W.J. Hurley and finds that the staff officers of these two specialised Corps conducted operational research with varying degrees of rigour. While none of them ever used the term 'operational research' to describe their work, they were undoubtedly its practitioners through their innovation, trials, experimentation, and subsequent dissemination of knowledge. This article offers a new interpretation of their adoption of a new scientific approach to operations and learning within the Canadian Corps during the First World War.

Introduction

Before breaching the Canal du Nord on 27 September 1918, in one of the most audacious operations conducted by the Canadian Corps, the corps commander, Lieutenant-General Sir Arthur Currie, reported, 'A complete programme of harassing fire by Artillery and Machine Guns was also put in force nightly. The Corps Heavy Artillery... carried out wire cutting, counter-battery shoots and gas concentrations daily, in preparation for the eventual operations.'[1] As Currie noted, the Canadian Corps did not only rely on artillery to shape the battlefield. Fire plans also incorporated indirect machine gun fire and gas. Together they provided what one historian has compared to a 'percussion crescendo' that supported the advance of the

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[1]Quoted in Ministry Overseas Military Forces of Canada (OMFC), *Report of the Ministry Overseas Military Forces of Canada, 1918,* (London: His Majesty's Stationery Office, 1919), p. 155.

infantry.[2] While gunners had conducted the technique of indirect artillery fire since the late nineteenth century, armies did not use chemical warfare or indirect machine gun fire on the battlefield until 1915. Canadian Corps machine gun and gas officers used operational research (OR) to incorporate gas and machine gun barrages into the corps' fire plans, enabling the infantry to break into German defensive positions, and to protect its soldiers from the effects of gas on a chemically saturated battlefield.[3] Although these officers never referred to their work as OR, they practiced the methodology as we now understand it, and their scientific studies are examples of OR that predate its formal emergence as a distinct discipline in the 1930s.

OR is defined by the Operational Research Society of the United Kingdom as:

> [T]he application of the methods of science to complex problems arising in the direction and management of large systems of men, machines, materials, and money in industry, business and defence. The distinctive approach is to develop a scientific model of the system, incorporating measurements of factors such as chance and risk, with which to predict and compare the outcomes of alternative decisions, strategies or controls. The purpose is to help management determine its policy and actions scientifically.[4]

The discipline adheres to the scientific method in that hypotheses examined through OR are testable, replicative, and observable. The OR methodology is quantitatively

[2]Shane B. Schreiber, *Shock Army of the British Empire: The Canadian Corps in the Last 100 Days of the Great War,* (St. Catherine's: Vanwell Publishing Limited, 2004), p. 47.

[3]For an assessment of the experience of the Canadian Corps and BEF with machine guns and gas, see Shelford Bidwell and Dominick Graham, *Fire-Power: British Army Weapons and Theories of War, 1904-1945,* (Barnsley: Pen & Sword Military Classics, 1982); Tim Cook, *No Place to Run: The Canadian Corps and Gas Warfare in the First World War,* (Vancouver and Toronto: UBC Press, 1999); G.S. Grafton, *The Canadian 'Emma Gees:' A History of the Canadian Machine Gun Corps,* (London: Hunter Printing Company, 1938); Paddy Griffith, *Battle Tactics of the Western Front: The British Army's Art of Attack, 1916-18,* (New Haven and London: Yale University Press, 1994); Albert Palazzo, *Seeking Victory on the Western Front: The British Army and Chemical Warfare in World War I,* (Lincoln and London: University of Nebraska Press, 2000); Bill Rawling, *Surviving Trench Warfare: Technology and the Canadian Corps, 1914-1918,* (Toronto, Buffalo, and London: University of Toronto Press, 1992); Donald Richter, *Chemical Soldiers: British Gas Warfare in World War I,* (Lawrence: University Press of Kansas, 1992); and Tim Travers, *The Killing Ground: The British Army, the Western Front and the Emergence of Modern Warfare, 1900-1918,* (Barnsley: Pen & Sword Military Classics, 2003).

[4]Maurice W. Kirby, *Operational Research in War and Peace: The British Experience from the 1930s to 1970,* (London: Imperial College Press, 2003), p. 3.

based; however, the discipline of OR does not necessarily involve complicated mathematics. In a military context OR provides commanders and staffs with a method to measure performance and effectiveness. OR informs them if they are doing the right things and doing the right things well. Commanders seek to employ their forces as efficiently and effectively as possible, and OR provides commanders and their staffs quantitative tools to measure how well they are using their forces and how well their forces are performing.

The experience of the British Expeditionary Force (BEF) during the Battle of the Somme between 1 July and 18 November 1916 marked a watershed moment for innovation on the Western Front. Pertinent to this examination, it had resulted in the addition of machine gun and gas staffs to the corps headquarters, such as: the then Lieutenant-Colonel Andrew McNaughton; the staff of the counter-battery staff office; the staff officers of the Canadian Machine Gun Corps (CMGC); and the Canadian Corps Gas Services who together innovated, trialled, experimented, and disseminated their findings as best practices.[5] Many staff officers leveraged their prewar scientific backgrounds while also benefitting from the innovations and practices of other formations in the BEF. Curiously, despite the importance of gas and machine guns to the Canadian Corps, neither arm had a robust staff structure comparable to the artillery. Nor did they have a prestigious office like the artillery counter-battery staff office with access to the corps commander. Insufficient staffing to manage both operations and OR imposed limitations on the scientific work that these staff officers could conduct, and the nature of the two weapon systems complicated data collection. Whereas the effects of artillery on the battlefield (cratering or damage from shrapnel) could be measured, the effects of gas or bullets fired during a machine gun barrage could not be so easily gauged. Personalities and inter-arm rivalries negatively affected the OR done by gas and machine gun officers as well. Despite these challenges, there is much evidence of OR indicators such as innovation, trials, experimentation, and the dissemination of findings, however imperfectly they may have been done.

Armies had fielded variants of the machine gun since the American Civil War; however, the stature of the machine gun rose dramatically on the Western Front. In the BEF, the machine gun eventually emerged as a distinct arm. In 1914, each infantry battalion in the Canadian Expeditionary Force had just two machine guns.[6] As the

[5]For an assessment of the OR conducted by McNaughton and the staff of the counter-battery staff office, see J.S. Finan and W.J. Hurley, 'McNaughton and Canadian Operational Research at Vimy,' *The Journal of the Operational Research Society*, Vol. 48, No. 1 (January 1997): pp. 10-14.

[6]G.W.L. Nicholson, *Official History of the Canadian Army in the First World War: Canadian Expeditionary Force, 1914-1919,* (Ottawa: Queen's Printer and Controller of Stationery, 1962), p. 25.

number of machine guns in the Canadian Corps increased between 1915 and 1918, the corps first grouped all the medium Vickers machine guns into companies that were affiliated with brigades. OR practitioners must be critical thinkers, and the CMGC was fortunate it could select its OR staff from the machine gun units that already comprised the 'best and brainiest men' from the infantry battalions.[7] The formation of the CMGC as a distinct arm from the infantry followed on 15 January 1917.[8] The last major reorganisation occurred in May 1918 when the Canadian Corps reorganised the brigade machine gun companies into divisional machine gun battalions, each with ninety-six guns. Two motorised machine gun brigades, with forty guns, augmented machine gun barrages for corps operations. These reorganisations largely followed those implemented by the British Army, except in 1918, a Canadian division had ninety-six machine guns to a British division's sixty-four.[9] Combined, the Canadian Corps had nearly the same firepower as a small British army. Not only quantitative differences existed between the CMGC and the British Machine Gun Corps. The commander of the CMGC also had greater control over these weapons, since General Headquarters (GHQ) did not uniformly implement this control for the corps machine gun commander across the BEF until November 1918.[10] Not only did Brigadier-General Raymond Brutinel, commander of the CMGC, have more machine guns at his disposal, but he also had the command and staff structure to use them more efficiently than the British could until GHQ clarified matters in November 1918 .[11]

Towards the end of 1916, the CMGC Vickers machine guns were in use to fire indirect barrages. Machine gunners had some knowledge of indirect fire before the war, but, like the artillery, most understood their primary role to be the use of a direct fire weapon.[12] Indirect fire, however, enabled the engagement of targets situated in

[7]H.T. Logan and M.R. Levey, *History of the Canadian Machine Gun Corps, C.E.F.,* (Bonn, London, and Ottawa: Canadian War Narratives Section, 1919), p. 100. The author is grateful to Dwight Mercer for provision of this reference.
[8]Library and Archives Canada (LAC), RG9-III-D-3, Vol. 4981, File 598, War Diary (WD) – Corps Machine Gun Officer, Canadian Corps, November 1916 – June 1917, Appendix M, Canadian Corps General Staff, G. 669 61/21, 'Memorandum to Form Canadian Machine Gun Corps,' 15 January 1917.
[9]Nicholson, *Official History of the Canadian Army in the First World War*, p. 383.
[10]Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 150.
[11]On Brutinel as a commander and innovator, see Cameron Pulsifer, 'Canada's First Armoured Unit: Raymond Brutinel and the Canadian Motor Machine Gun Brigades of the First World War,' *Canadian Military History* Vol. 10, No. 1 (2001): pp. 44-57; and Yves Tremblay, 'Brutinel: A Unique Kind of Leadership,' in *Warrior Chiefs: Perspectives on Senior Canadian Military Leaders*, eds., Bernd Horn and Stephen Harris, (Toronto and Oxford: Dundurn Press, 2001), pp. 57-70.
[12]R.V.K. Applin, *Machine-Gun Tactics,* (London: Hugh Rees Ltd., 1910), pp. 46-54.

defilade. It also enabled the machine guns to fire over the heads of advancing infantry to augment the artillery fire plan. The actual procedure for indirect machine gun fire mirrored the procedures used by the artillery. To fire indirect, the machine gunner needed to determine the following: the exact position of his weapon, the direction to the target, the distance between the gun and target, as well as the angle of sight between the gun and target.[13] When firing over friendly troops, machine gunners also needed to account for the distance from the gun position to friendly troops and the height of friendly troops above the gun position. The gunner determined direction and range with a compass and map, and then used a spirit level, elevating dial, or clinometer, an instrument that measures the angle of elevation of the barrel from the ground, to set the elevation of his gun. Machine gun barrages adhered to the same principles of artillery barrages, but officers gave more consideration to siting the machine guns in enfilade to maximise the beaten zone of the weapon over the target during the barrage.[14]

The Canadian Corps incorporated machine guns into the wider fire plan prepared by the artillery. Captain George Lindsay, a British infantry officer in charge of machine gun training for the BEF's New Army divisions, had pioneered the use of machine gun barrages.[15] Lindsay's ideas shaped experimentation with this technique on the battlefield and began in 1915, although the first instance of a machine gun barrage is difficult to determine. The British official history states that the machine guns of the British 2 and 47 Divisions, fired the first indirect machine gun barrage during the Battle of Loos between 25 September and 8 October 1915.[16] However, historian Paddy Griffith writes, 'the true father of the machine gun barrage turns out to have been the equally energetic and forceful Brigadier E. [*sic*] Brutinel, the machine gun officer to the Canadian Corps.'[17] Griffith credits Brutinel with firing the first barrage on 2 September 1915. In neither case, however, was the machine gun fire incorporated into the wider artillery fire plan. Through OR, the machine gunners developed the tactical acumen to integrate their weapons into the fire plans that supported the later operations of the Canadian Corps.

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[13]J. Bostock, *The Machine Gunners' Handbook: Including the Vickers and Lewis Automatic Machine Guns, Eleventh Edition,* (London, W.H. Smith & Son, 1917), pp. 197-198.

[14]General Staff, General Headquarters, *Notes and Rules for Barrage Fire with Machine Guns,* (Machine Gun School, Machine Gun Training Centre, May 1917). The beaten zone refers to the elliptical shape formed when the rounds fired from the machine gun strike the ground or target.

[15]Griffith, *Battle Tactics of the Western Front*, pp. 123-124.

[16]James E. Edmonds, *History of the Great War: Military Operations, France and Belgium, 1915, Volume II, Battles of Aubers Ridge, Festubert, and Loos,* (London: His Majesty's Stationery Office, 1936), pp. 188, 254.

[17]Griffith, *Battle Tactics of the Western Front*, p. 124.

The now mostly discredited myth of the superiority of Dominion forces over their British counterparts extended to the use of indirect machine gun fire.[18] Historian Pierre Berton claims, 'The British thought of the machine gun as a kind of super rifle. It took the Canadians to demonstrate at Vimy that it could be employed as light artillery.'[19] Shelford Bidwell and Dominick Graham argue that the Canadian Corps pioneered machine gun tactics because its officers did not hold prejudices against employing the weapon in an indirect fire role, as the British Army did.[20] These arguments are unfounded. The BEF first incorporated a machine gun barrage into the artillery plan during the attack made on the Thiepval Ridge between 26 and 27 September 1916.[21] Incidentally, the Canadian Corps played a prominent role in that attack. The attack did not result in complete success, but the machine gun barrage fired by 1 Canadian Motor Machine Gun Brigade worked. '[I]t is reported that during the 1st hour of firing that [the machine gun] Battery completely wiped out [the] German counter attack directed against the flank held by the 14th Batt[alion].'[22] Nevertheless, machine gun barrages were not particularly efficient, and a machine gun company could fire well over one million rounds in a single day, and yet only produce more of a morale effect than a physical one.[23] Making machine gun barrages more effective and more efficient required OR.

Brutinel played an instrumental role in the innovations of machine gun tactics and methods. An engineer by training, and a French soldier when the war began, Brutinel enlisted in the Canadian Expeditionary Force at the request of Sir Clifford Sifton, the former Canadian Minister of the Interior, to help form the 1 Canadian Motor Machine Gun Brigade.[24] Brutinel assisted in raising funds for its equipment, arranged for the design and purchase of their armoured cars, and purchased their first Colt machine

[18]For a recent examination of how the British Army innovated and learned on the Western Front, see Aimée Fox, *Learning to Fight: Military Innovation and Change in the British Army, 1914-1918,* (Cambridge: Cambridge University Press, 2018).
[19]Pierre Berton, *Vimy,* (Toronto: McClelland and Stewart, 1986), p. 170.
[20]Bidwell and Graham, *Fire-Power*, p. 123.
[21]Martin Farndale, *History of the Royal Regiment of Artillery: Western Front, 1914-18,* (Woolwich: The Royal Artillery Institution, 1986), p. 154.
[22]LAC, RG9-III-D-3 Vol. 4986, File 626, WD – 1st Canadian Motor Machine Gun Brigade, September 1916, Appendix 137, Lieutenant-Colonel Raymond Brutinel, 'Report on Operation 26-27 September 1916,' n.d.
[23]Griffith, *Battle Tactics of the Western Front*, p. 124.
[24]LAC, RG150, Accession 1992-93/166, Box 1212-39, Raymond Brutinel Personnel File; and Canadian War Museum, George Metcalf Archival Collection, 20020045-1525, The Raymond Brutinel Tapes, Tape 1, p. 2, 18 October 1962. The author is grateful to Dwight Mercer for provision of this reference.

guns.[25] He also promoted a culture of learning within the machine gun unit. In one early experiment, Brutinel instructed his staff to make a terrain model and plot the trajectories of the machine guns. [26] From this model, he determined that machine guns could fire indirectly 500 yards into the enemy's rear area, at a place where several German artillery officers congregated at predictable times. After engaging and scattering these officers several times, the German artillery retaliated against the machine guns. Brutinel used their retaliation as proof that his indirect machine gun fire methods worked. While this experiment lacked the rigour of later tests, it was a start.

While Brutinel possessed a keen and analytical mind, he was also an egotistical self-promoter. During the war, he disagreed or clashed with Lindsay, Secretary of State for War Lord Kitchener, Lieutenant-General E.A.H. Alderson, then commander of 1 Canadian Division, Brigadier-General C. Bonham-Carter, Brigadier-General Staff (Training) at GHQ, and the staff of the GHQ Machine Gun School.[27] Generally, his disagreements with these people stemmed from his belief that they did not understand how machine guns ought to be employed. His tendency to take credit for almost all innovations in machine gun tactics and techniques makes substantiating his claims difficult. For instance, he claimed that the French Army sought him out to instruct French officers on the machine gun methods he had used at Vimy between 9 and 12 April 1917. Brutinel did lecture French machine gun officers; however, his claim that General Émile Fayolle, commander of *Groupe d'armées du Centre*, watched Brutinel's demonstration, converted to his methods, and then ordered a commander to attack with only a machine gun barrage supporting the advance seems unlikely.[28] The French official history makes no mention of Brutinel drastically revising French doctrine, and Fayolle had established a reputation for meticulous artillery preparations before his attacks.[29] During the summer of 1917, the French Army was in a state of near mutiny after the failed Nivelle offensive, so it seems unlikely that any commander would have ordered an attack without artillery support.

While the Canadian Militia had limited experience with machine guns prior to the First World War, it had none with chemical warfare. The Canadian Expeditionary Force had its debut with gas during the Second Battle of Ypres between 22 April and 25 May

[25]Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 16.
[26]The Raymond Brutinel Tapes, Tape 11, p. 2.
[27]Ibid., Tape 7, pp. 1-2; and Tape 21, pp. 1-2.
[28]Ibid., Tape 20, p. 3.
[29]Ministère de la guerre, état-major de l'armée – service historique*, Les Armées Françaises dans la Grande Guerre, Tome V, Volume 2: Les offensives à objectifs limités, 15 mai – 1 novembre 1917,* (Paris: Imprimerie Nationale, 1937), p. 340; and Robert A. Doughty, *Pyrrhic Victory: French Strategy and Operations in the Great War,* (Cambridge and London: Harvard University Press, 2005), pp. 291-292.

1915, when the German Army used chlorine gas against the soldiers of 1 Canadian Division as well as the French *45 Division d'infanterie* and *87 Division d'infanterie territoriale*. Neither the Canadians nor the French had protection against the new weapon. Innovation was needed to shield their forces from the effects of poison gas. Much like early flash-spotting and sound-ranging innovations for counter-battery fire, serving officers with a scientific background identified the problem and proposed solutions almost immediately. The ammonia in urine partially neutralised chlorine, so when the German unleashed gas against the Canadian division on 24 April 1915, several officers ordered their soldiers to urinate into their handkerchiefs and then cover their faces with the wet cloths.[30] Better solutions followed. Both the gas and the medical services of the BEF began developing masks and respirators to protect their soldiers from the physical effects of gas and enable them to fight in a chemical environment. The War Office experimented with several gas mask designs before adopting the small box respirator in August 1916.[31] This gas mask remained in service for the remainder of the war. Even with this mask, though, the Canadian Corps Gas Services and Canadian Army Medical Corps had to continually revise training and techniques to mitigate against newer, deadlier gases delivered through increasingly effective means. The fight against gas never ceased.

Like all weapons, gas also has psychological as well as physical effects, and the morale effect of it is amplified when used against undisciplined or ill-trained soldiers. Soldiers needed to know that their respirators worked and how to use them. Gas training became as necessary as rifle shooting and grenade throwing. Historian C.R.M.F. Cruttwell, who served as an officer with 1/4 Battalion, Royal Berkshire Regiment, described the soldiers' predicament.

> In the face of gas, without protection, individuality was annihilated; the soldier in the trench became a mere passive recipient of torture and death…. [N]early every soldier is or becomes a fatalist on active service; it quietens his nerves to believe that his chance will be favourable or the reverse. But his fatalism depends upon the belief that he has a chance. If the very air which he breathes is poison, his chance is gone: he is merely a destined victim for the slaughter. Later on, when gas-masks became increasingly efficient, this type of warfare was regarded as an unpleasant incident, for suffering became contingent on carelessness or surprise.[32]

[30]Cook, *No Place to Run*, pp. 6-7.
[31]Nicholson, *Official History of the Canadian Army in the First World War*, p. 71.
[32]C.R.M.F. Cruttwell, *A History of the Great War, 1914-1918,* (Oxford: Clarendon Press, 1934), pp. 153-154.

Historian Tim Cook expanded upon this concept of *faith* in equipment, 'The creation of the faith in both respirators and anti-gas training was the most important legacy of the Canadian Corps Gas Services.'[33] Measuring faith is impossible, and faith is rarely rooted in provable fact. Yet in the case of chemical warfare, faith still needed science.

Trials completed during training in France were vital to this process. After witnessing one such gas mask trial in May 1915, a soldier wrote, 'We were at first rather skeptical as to their efficiency, but the *test* proved this to us and gave us a great deal of confidence.'[34] Not all gas training proved as beneficial, and some formations went to the frontline inadequately prepared for the chemical environment.[35] The process of protecting soldiers from this new weapon was hardly perfect. However, gas training reinforced to soldiers the importance of gas discipline and gave them confidence in their protective equipment. Gunner G.H. Jackson described the gas training that he underwent in France. '[T]he gas … turned my brass buttons black, destroyed the illuminated dial on my watch and turned my khaki uniform a reddish brown. Say! what [*sic*] would it do to your lungs without protection?'[36] No training could ever fully prepare a soldier for combat. However, any training is better than none, and gas staffs used OR – especially trialling – to develop protective equipment and training to protect BEF soldiers from the effects of chemical warfare.

The BEF not only developed countermeasures to gas; it actively sought to use gas offensively. In June 1915, the War Office formed two Special Companies of Royal Engineers that comprised soldiers and officers with chemistry backgrounds and appointed a Royal Engineer officer, Major C.H. Foulkes, to conduct and coordinate chemical warfare in the BEF.[37] Eventually, this force expanded into the Special Brigade, Royal Engineers. The Special Brigade used a variety of delivery systems to attack the Germans with gas. It was the only force in the BEF that used gas offensively until the artillery received large quantities of gas shells in 1917. The British first used gas on a large scale at Loos in 1915. In planning the attack, General Sir Douglas Haig, then commander of First Army, opted to use dispensed chlorine gas to compensate for an insufficient quantity of guns and shells.[38] Despite some successes, the gas failed to

[33]Cook, *No Place to Run*, p. 233.
[34]Quoted in Richter, *Chemical Soldiers*, p. 13. Emphasis added by the author.
[35]Cook, *No Place to Run*, p. 81, pp. 90-94.
[36]Charles Lyons Foster and William Smith Duthie, eds., *Letters from the Front: Being a Record of the Part Played by Officers of the Bank in the Great War, 1914-1918, Volume I,* (Toronto and Montreal: Southam Press Limited, 1920), p. 149.
[37]Palazzo, *Seeking Victory on the Western Front*, p. 44; and Richter, *Chemical Soldiers*, p. 16.
[38]Edmonds, *History of the Great War: Military Operations, France and Belgium, 1915, Volume II*, p. 153.

subdue the German defenders, and the attack resulted in minimal gains with heavy casualties. After the battle, Foulkes ordered his officers to submit notes on the results of the chemical attacks, assessing the effectiveness of the gas in their sectors. He also compiled reports from captured German documents and prisoners.[39]

By analysing these notes and reports, Foulkes quantified the effects of gas and developed procedures for the proper use of gas. This problem solving is what OR does, by finding shortcomings in the system and addressing them to improve effectiveness and efficiency. But the gas officers still needed to integrate gas into the overall offensive system. Arguments proposed by historians like James Edmonds, the British official historian of the Great War, that 'Gas achieved but local success, nothing decisive; it made war uncomfortable, to no purpose' miss the mark.[40] Donald Richter's assertion that chemical warfare was 'occasionally effective, never decisive' is probably more balanced.[41] Like aircraft, machine guns, and quick-firing artillery, it could never win the war on its own, but when combined with artillery and machine guns, it did help achieve neutralisation and suppression effects.

As the employment of gas and machine guns required increasingly specialised skills, the staff establishment responsible for their use grew. A First Army order to the Canadian Corps in the spring of 1916 appointed a gas officer (DGO) in each divisional headquarters and effectively created the Canadian Corps Gas Services (CCGS).[42] And the formation of the CCGS helped ensure uniformity of anti-gas training across the divisions of the corps.[43] It also facilitated the dissemination of lessons learned within the Canadian Corps and to other British formations. By October 1916, battalions, brigades, and divisions all had gas officers, who were responsible for anti-gas training and adherence to regulations. Only the headquarters of armies and corps lacked a gas officer. Like the artillery, the gas services operated within a wider imperial structure, and these innovations to the Canadian chemical warfare establishment largely resulted from the British direction. The British had grouped their offensive and defensive

[39]Richter, *Chemical Soldiers*, p. 92.
[40]James E. Edmonds, *History of the Great War: Military Operations, France and Belgium, 1918, Volume V, 26 September-11 November: The Advance to Victory,* (London: His Majesty's Stationery Office, 1947), p. 606n2
[41]Richter, *Chemical Soldiers*, p. 147.
[42]William G. Macpherson, *History of the Great War: Medical Services, Diseases of the War, Volume II, Including the Medical Aspects of Aviation and Gas Warfare, and Gas Poisoning in Tanks and Mines,* (London: His Majesty's Stationery Office, 1923), pp. 328-334.
[43]Cook, *No Place to Run*, pp. 6-7.

chemical warfare specialists under the Gas Services on 25 January 1916.[44] This directorate coordinated both offensive and defensive aspects of chemical warfare. Efforts to create Canadian Engineer 'Special Companies,' responsible for the offensive use of gas during the winter of 1917-1918, did not materialise.[45] Thus the CCGS played the largest role in the development of anti-gas techniques and advised on the offensive use of gas.

The emergence of the CMGC as a distinct arm from the infantry or artillery facilitated the conduct of OR by machine gun officers. Like McNaughton, Brutinel enjoyed the support of the senior commanders in the Canadian Corps and the BEF for his work. Haig was even enthusiastic about the technique.[46] Brutinel's forceful personality may have brought him into conflict with others, but it also ensured that the CMGC could maintain the corporate knowledge of indirect fire.[47] Otherwise, its officers would lose the necessary skillsets for this technical work. Brutinel recalled:

> To maintain the fluidity of this great fire power, intense training was essential, implying tactical appraisal of the task at hand, the Machine Gun Officer becoming ipso facto the Technical Adviser of the Infantry Commander, or if preferred, his Consulting Engineer. The Administrative organization of the Canadian Machine Gun Battalion met these essentials.[48]

The machine gunners adopted a unique organisation structure in much the same way the artillery did. Not only did this unified structure improve standardisation in the training and use of machine guns, but it also facilitated the control of corps level machine gun barrages and the dissemination of new ideas and innovations from the machine gun units to the headquarters of the Canadian Corps.

The General Officer Commanding (GOC) CMGC had a modest staff that included a brigade major for operations, a staff captain for administration and transport, a reconnaissance officer, and seven other ranks (see Figure 1). The brigade major, Major W.B. Forster, had worked as an accountant before the war and attested into 27

[44]James E. Edmonds, *History of the Great War: Military Operations, France and Belgium, 1916, Volume I, Sir Douglas Haig's Command to the 1st July: Battle of the Somme,* (London: His Majesty's Stationery Office, 1932), p. 78.
[45]Cook, *No Place to Run*, p. 143.
[46]Gary Sheffield, *The Chief: Douglas Haig and the British Army,* (London: Aurum, 2011), p. 151.
[47]Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 45.
[48]The Raymond Brutinel Tapes, Tape 9, p. 2.

Canadian Infantry Battalion.[49] The officer responsible for administration, Captain J.K. Lawson, had a prewar administrative career.[50] The reconnaissance officer, Lieutenant W.T. Trench, and his replacement from 24 April 1918, Lieutenant P.M. Humme, had both worked as surveyors.[51] Captain M.R. Levey, another pre-war surveyor and the officer who collected most of the data from Brutinel's early trials, joined the staff as a staff learner during the summer of 1918.[52] The combined mathematical and administrative abilities of the staff were well suited the conduct of OR. Each infantry division commander retained authority over the machine gun battalion affiliated with their division. However, the GOC CMGC assumed control to coordinate machine gun plans for corps level battles. Planning these barrages required much staff effort, and they conducted most of their research during operational lulls. While the formation of gas and machine gun staffs helped the Canadian Corps better use these weapons, neither the CCGS nor the CMGC had a large staff complement that could manage operations and conduct operation research like the counter-battery staff office could do. The corps headquarters did not permanently allocate staff supporting the corps machine gun officer until 19 March 1918.[53]

[49]LAC, RG150, Accession 1992-93/166, Box 3212-14, William Burton Foster Personnel File.

[50]LAC, RG150, Accession 1992-93/166, Box 5471-20, John Kilburn Lawson Personnel File.

[51]LAC, RG150, Accession 1992-93/166, Box 9777-69, Waldo Talbot Trench Personnel File; and LAC, RG150, Accession 1992-93/166, Box 4609-48, Powell Mat Humme Personnel File.

[52]LAC, RG150, Accession 1992-93/166, Box 5611-79, Mark Robert Levey Personnel File. On the staff learner system in the Canadian Corps, see Douglas E. Delaney, 'Mentoring the Canadian Corps: Imperial Officers and the Canadian Expeditionary Force, 1914-1918,' *The Journal of Military History* Vol. 77, No. 3 (July 2013): pp. 942-943.

[53]Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 65.

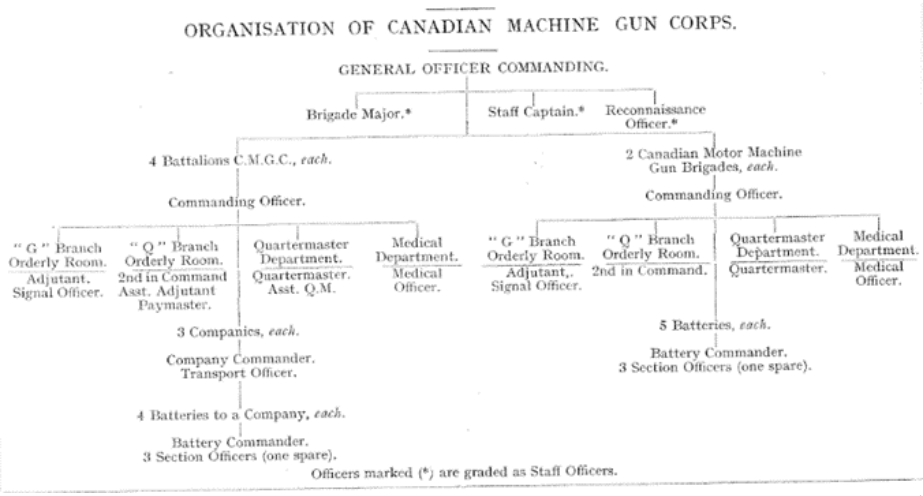

Figure 1 Organisation & Staff Structure of the Canadian Machine Gun Corps, 1918.[54]

The formation of a staff to manage chemical warfare at the corps level did not occur until 1917, and the gas services staff continued to lack sufficient personnel to manage its myriad responsibilities, including the conduct of OR. On 26 March 1917, the Canadian Corps appointed Captain W. Eric Harris as the chemical advisor in the corps headquarters.[55] The chemical advisor position fell under the purview of the 'G' or operations staff. However, his close liaison with the Canadian Army Medical Corps, training establishments, and logistics organisations meant he also had close links with the corps 'A' (personnel) and 'Q' (logistics) staff. The small staff that comprised the CCGS included a clerk, corporal, batman, and driver.[56] As the corps chemical advisor, Harris leveraged the DGOs as well as the brigade and battalion gas officers for data for analysis that he integrated into his OR reports (see Figure 2). However, he only had coordination authority with these officers. This limited command arrangement denied Harris the flexibility to modify the structure and manning of the corps gas staff based on operational experience, something McNaughton never had to worry about with the counter-battery staff office. Furthermore, Harris did not have the same authority over the DGOs that McNaughton had over the guns of the heavy artillery,

[54]OMFC, *Report of the Ministry Overseas Military Forces of Canada, 1918,* (London: His Majesty's Stationery Office, 1919), p. 290.
[55]LAC, RG150, Accession 1992-93/166, Box 4097-44, Walter Eric Harris Personnel File.
[56]LAC, RG9-III-D-3, Vol. 5048, File 923, WD – Chemical Advisor, Canadian Corps, April 1917, Appendix II, First Army Headquarters, Establishment of the Gas Services,12 February 1917.

despite the neat organisational diagram at Figure 2. Harris could only do so much work with his tiny staff, and he even had difficulty maintaining the CCGS war diary.[57]

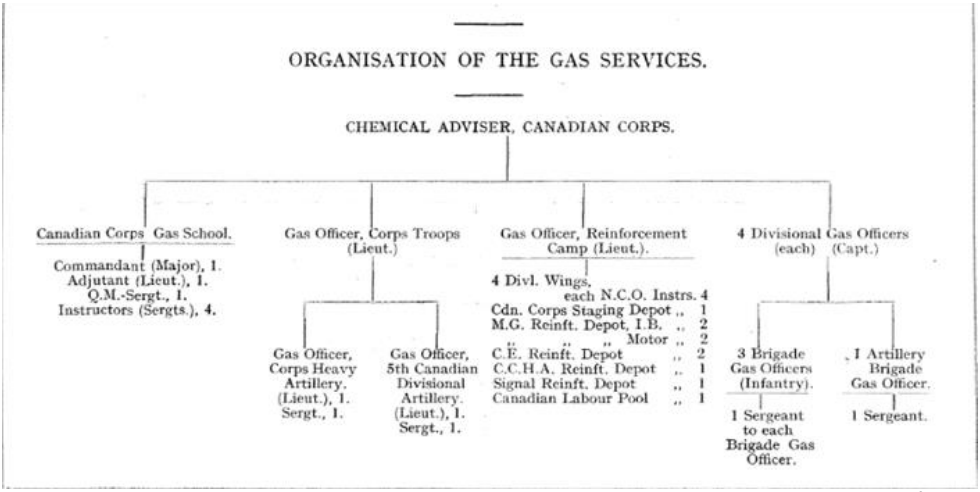

Figure 2 Organisation and Staff Structure of the Canadian Corps Gas Services, 1918.[58]

Since armies only began using chemical weapons on a large scale during the First World War, the War Office had to look beyond formal military training to find suitable officers for service on the chemical warfare staff. These gas officers had a long list of responsibilities, and the army attempted to match their relevant qualifications and skills from their prewar civilian careers to their new military duties. Principally, Harris was responsible for the coordination and training of the DGOs as well as the standardisation of the corps anti-gas policy.[59] Other important tasks included liaison with the artillery for the use of gas shells, collation of information on German chemical warfare tactics from prisoner of war interrogations, and collection of samples of new chemical agents used by the Germans for the British Gas Services to analyse. His prewar career as a science teacher helped with these tasks.[60] Harris had joined the Canadian Expeditionary Force as an artillery officer but mostly served as a gas officer, first with the 2 Canadian Division and later as the assistant chemical advisor at First

[57]Ibid., August 1917, Canadian Section GHQ, 'Note to Canadian Corps Chemical Advisor,' 28 September 1917.
[58]OMFC, *Report of the Ministry Overseas Military Forces of Canada, 1918,* (London: His Majesty's Stationery Office, 1919), p. 283.
[59]WD – Chemical Advisor, Canadian Corps, April 1917, Appendix I, First Army Headquarters, No. G.S. 528 'Duties of the Chemical Advisor,' 11 March 1917.
[60]Harris Personnel File.

Army. All the DGOs in the Canadian Corps in April 1917 had scientific, teaching, and administrative backgrounds. Lieutenant A.A. McQueen, 1 Canadian Division DGO, worked as an electrical engineer before he enlisted into the artillery.[61] Lieutenant A.B. Campbell, 2 Canadian Division DGO, an infantry officer, had been a clerk.[62] The DGO of 3 and 4 Canadian Divisions, Lieutenants N.C. Qua and H. Beaumont, worked in education and mining, respectively.[63] The staff of the CCGS understood the components of systems, as well as the importance of learning and administration. Innovation, trials, experimenting, and disseminating – the hallmarks of OR – required these skill sets.

The findings of the OR performed by Harris and his staff percolated through the army headquarters to GHQ and were finally encapsulated in doctrine, such as *SS534 Defence Against Gas*.[64] In cooperation with the Canadian Army Medical Corps, the CCGS conducted a rigorous programme of OR to defend against poison gas. For instance, in September 1917, the CCGS examined no fewer than six areas of concern, including countermeasures for new German gas shells, testing sites to determine the efficacy of gas masks, and an increase in casualties suffering temporary blindness from exposure to mustard gas.[65] Following an enemy gas shell bombardment against the battery positions of 2 Canadian Divisional Artillery on 6 September 1917, the gas officer investigated the types of ammunition fired, recorded the prevailing meteorological conditions, interviewed the casualties, and noted the state of the gas-proof dugouts.[66] He found that the Germans fired a mixture of high-explosive and gas shells to damage the gas-proof dugouts to target exposed soldiers with both splinters and gas. The batteries had taken additional precautions prior to the shelling owing to the favourable conditions for a gas bombardment. The Canadian gunners sustained two serious casualties, one caused by a splinter from high explosive and the second from the force of the gas shell bursting on top of the gun pit. No serious casualties were attributed to the gas itself. The gas officer attributed the lack of casualties to the effectiveness of

[61]LAC, RG150, Accession 1992-93/166, Box 7193-9, Allan Alderson McQueen Personnel File.
[62]LAC, RG150, Accession 1992-93/166, Box 1419-28, Alexander Bruce Campbell Personnel File.
[63]LAC, RG150, Accession 1992-93/166, Box 8039-3, Norman Charlton Qua Personnel File; and LAC, RG150, Accession 1992-93/166, Box 563-32, Henry Vincent Leeming Beaumont Personnel File.
[64]General Staff (GS), General Headquarters (GHQ), *SS534 Defence Against Gas,* (March 1918).
[65]WD – Chemical Advisor, Canadian Corps, 1, 8, 10, 24, 25, and 27 September 1917.
[66]Ibid., Appendix I, Lieutenant H.H. Wallace, Artillery Gas Officer, 2nd Canadian Divisional Artillery 'Report on Gas Shell Bombardment 2nd Canadian Divisional Artillery Battery Positions on September 6th, 1917,' n.d.

the gas-proof dugouts and the small box respirator. He made minor recommendations for additional procedures, such as increased vigilance during weather conditions favourable to a gas bombardment and limiting the frequency that personnel moved in and out of the gas-proof dugouts during a bombardment, and he presented his findings in a report submitted to Harris on 10 September. Harris discussed the report at a conference with the DGOs on 15 September and forwarded it to the chemical advisor at First Army headquarters.[67] While the report went up the chain of command, Harris issued a new directive on 1 October for defensive measures against gas for artillery units in the Canadian Corps.[68] The directive addressed all of the recommendations from the 6 September bombardment.[69] The CCGS sent copies of these reports and directives to the chemical advisor at the First Army headquarters, which compiled the reports from its corps and sent a consolidated report to GHQ. The British Gas Services at GHQ analysed these reports and eventually published pamphlets like *SS534*.[70] These publications spurred further OR to verify the effectiveness of new methods, and the cycle of OR began again.

While the CCGS did not have a monopoly on conducting trials, it was the only organisation in the Canadian Corps that committed the findings of its trials to paper and then disseminated them. The infantry conducted some creative trials with chemical defence, but tests conducted outside of the formal structure could never amount to much

> The other day we dug a deep trench and filled it with the brand of gas the Germans use; some of our boys put on a new style of [gas] helmet we have and walked through it. The test was highly satisfactory, so we have not much to fear.[71]

While this test may have made the infantrymen confident in their respirators, these informal experiments lacked the rigorous data collection that typified reports prepared by the CCGS. The gas staff structured their reports on infantry casualties in the manner of No. 2 Operational Research Section, an OR staff serving within the headquarters of the 21 Army Group, during the Normandy campaign of 1944.[72]

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[67]Ibid., Appendix II, Minutes of Meeting of D.G.O.'s at C.A.'s Office Canadian Corps 15 September, 1917, p. 2, n.d.
[68]Ibid., October 1917, Appendix I, 'Defensive Measures Against Gas for Artillery Units,' n.d.
[69]Ibid., 10, 13, and 17 September 1917.
[70]GS, GHQ, *SS534.*
[71]Foster and Duthie, eds., *Letters from the Front*, p. 50.
[72]WD – Chemical Advisor, Canadian Corps, March 1918, Appendix 15, Major W.E. Harris, Report on Recent Cases of Gas Casualties, 16 March 1918; and Report No.

Through these efforts, the Canadian Corps disseminated its findings to other BEF formations and achieved high standards of gas discipline and training, which resulted in fewer gas casualties. General Sir Henry Horne, commander of First Army, sent a congratulatory letter to the Canadian Corps after it sustained less than forty casualties after a forty-eight-hour chemical bombardment attack in February 1918.[73] His letter noted how the effectiveness of the gas training and discipline in the corps contributed to this low figure of casualties. Achieving this high standard was not an accident. It was the result of analysis and much deliberate work.

While being responsible for gas training allowed the staff of the CCGS to trial new masks and anti-gas drills, it also proved a distraction from OR. As the chemical advisor to the Canadian Corps, Harris had control over all anti-gas training that corps schools conducted in France. However, his authority did not extend to the anti-gas training given to Canadian recruits across the Channel in Britain. Furthermore, unlike Brutinel, Harris lacked the clout to make substantive changes to the Canadian Expeditionary Force chemical warfare organisation, which would have improved training. Following his appointment as commander of Canadian forces in the United Kingdom in December 1916, Lieutenant-General Sir Richard Turner improved the overall quality of training for Canadian soldiers in England; however the chemical defence training that recruits underwent there remained deficient.[74] Harris travelled to Britain in December 1917 to standardise the anti-gas training conducted there with that done in France, and also form a chemical warfare training organisation subordinate to the CCGS.[75] Harris struck out, and for the remainder of the war, gas training in England remained inadequate.[76] Navigating the relationship between the Canadian Corps and the Canadian forces in the United Kingdom remained a distraction for the CCGS. Harris and his staff spent an inordinate amount of time and effort sorting out training deficiencies of the replacements arriving from England instead of conducting research.

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19 Infantry Officer Casualties, in Terry Copp, ed., *Montgomery' Scientists: Operational Research in Northwest Europe – The Work of No. 2 Operational Research Section with 21 Army Group, June 1944 to July 1945,* (Waterloo: Laurier Centre for Military Strategic and Disarmament Studies, 2000), pp. 425-430.

[73]WD – Chemical Advisor, Canadian Corps, February 1917, Appendix 12, First Army Headquarters, No. G.S. 1035, Letter of Appreciation of the High Standard of Discipline and Gas Training in the Canadian Corps, 19 February 1918.

[74]William F. Stewart, *The Embattled General: Sir Richard Turner and the First World War,* (Montreal, Kingston, London, and Chicago: McGill-Queen's University Press, 2015), pp. 171-206; and Cook, *No Place to Run*, p. 117.

[75]WD – Chemical Advisor, Canadian Corps, 22 December 1917.

[76]Harris subsequently had to leave France and return to England to supervise training on at least one other occasion. WD – Chemical Advisor, Canadian Corps, 10 June 1918.

Harris and his gas officers did not have a monopoly on chemical warfare innovations in the BEF, and neither did Brutinel and his staff for improving indirect machine gun fire. However, their innovations and trials resulted in the incorporation of machine gun barrages into every corps fire plan after the Somme. The CMGC developed ballistic shooting cards by arcing the machine gun fire on hard-packed sand beaches at low tide.[77] One of Brutinel's officers, Levey, measured the accuracy and precision of the bursts and cross-indexed the findings with their clinometers.[78] Trials like this one enabled the CMGC to accurately fire hundreds of thousands of bullets into pre-determined kill zones on order. This type of fire denied the Germans the opportunity to repair damaged obstacles and defensive positions at night and proved useful for cutting off German forces attempting to withdraw.[79] Much like the informal sharing of reports between artillery staffs, the machine gun officers disseminated the results of this trial with other formations. It took many trials like this one, but eventually, training institutions adopted these methods and ensured standardisation across the BEF. The involvement of Brutinel in these technical machine gun innovations stands in marked contrast to Major-General E.W.B. Morrison, commander of the Canadian Corps artillery, and the development of the artillery. The latter preferred to let his talented subordinates like then Major Alan F. Brooke and McNaughton do most of the work.

After the Somme in 1916, the Canadian Corps incorporated machine gun barrages into all its major attacks. From these operations, Brutinel and his staff conducted much OR to improve the effectiveness of their technique. The machine gun barrage was an important component of the fire plan for the assault on Vimy Ridge in 1917, and Brutinel's guns fired nearly five million rounds during the barrage.[80] It prevented the Germans from maintaining their defensive positions, and it augmented the suppression provided by the artillery barrage. Indirect machine gun fire also prevented defenders from withdrawing or reinforcing their positions.[81] The report prepared after Vimy Ridge by the CMGC is interesting for how it contrasts with the one prepared by

[77]The Raymond Brutinel Tapes, Tape 9, pp. 2-3.
[78]Levey Personnel File.
[79]GS, GHQ, *SS201 Tactical Summary of Machine Gun Operations No. 1,* (France: Army Printing and Stationery Services, October 1917), p. 2; and GS, GHQ, *SS192 The Employment of Machine Guns: Part I, Tactical,* (France: Army Printing and Stationery Services, January 1918), p. 17.
[80]LAC, RG9-III-D-3, Vol. 4957, File 503, WD – GOC RA, Canadian Corps, April 1917, Appendix I, BGGS Canadian Corps, G.3. S.156/31/2., Artillery Instructions for the Capture of Vimy Ridge, p. 3, 28 March 1917; and Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 169.
[81]The Raymond Brutinel Tapes, Tape 19, p. 2.

McNaughton and the staff of the counter-battery staff office for the same battle.[82] These artillery officers conducted post-battle reconnaissance of the German battery positions to verify the accuracy of the intelligence and collect data on the effect of the counter-battery programme for statistical analysis. The CMGC staff relied largely on anecdotal evidence from machine gun companies, infantry formation staffs, and prisoner interrogations - not quite the same quantitative rigour. Even so, the report still yielded several lessons learned.[83] Based on the evidence gathered, the morale effect of indirect machine gun fire was more significant than the number of casualties inflicted on the Germans. That is what prisoners of war said, and the disrepair of obstacles and defensive positions, because German soldiers dared not enter them for the machine gun bullets raining down, corroborated it. So did the capture of trench mortar positions that had not been resupplied with ammunition. The report also recommended observation of fire, when possible, more clinometers (one per two machine guns), and an increase in the strength of the machine gun companies to help carry the vast quantities of ammunition required to fire these barrages. The CMGC widely disseminated the report throughout the BEF and the French Army, and *SS192*, *SS201*, and *Notes and Rules for Barrage Fire with Machine Guns* reflect several of its recommendations.[84] The staff also published a document on the employment of mobile forces based on the experiences of Brutinel's motorised machine gun forces at Amiens (8-11 August 1918) and Arras (26 August - 3 September 1918).[85] This broad dissemination of knowledge acquired through OR across the Western Front could be further trialled and experimented within operations. Officers then collected new data, and the process would begin again.

The machine gun barrage supporting the attack on Valenciennes (28 October – 2 November 1918) demonstrates that the CMGC adopted many of these findings. In addition to the overwhelming artillery preparations planned by McNaughton, forty-seven machine guns supported the attack of the 10 Canadian Infantry Brigade on Mont Houy alone.[86] The machine guns fired the barrage with enfilading fire, and machine gun officers were supposed to observe the fire and make modifications to the fire plan if

[82]WD – Corps Machine Gun Officer, Canadian Corps, November 1916 – June 1917, Appendix K, Notes on the Employment of Machine Guns in the Canadian Corps during the Operations Leading to the Capture of Vimy Ridge, n.d.
[83]Ibid., pp. 2, 8-9.
[84]GS, GHQ, *SS201*; GS, GHQ, *SS192*.
[85]LAC, RG9-III-D-3, Vol. 4817, File 19, WD – Canadian Corps – General Staff, September 1918, Appendix II. Canadian Corps General Staff, G.528/3-53, *Employment of Corps Mobile Troops*, p. 2, 19 September 1918.
[86]LAC, RG9-III-D-3, Vol. 4986, File 624, WD – 4th Canadian Machine Gun Battalion, October 1918, Appendix Y, General Staff 4th Canadian Division, G. 29/2910-559, 'Valenciennes Instructions No. 2,' p. 4, 31 October 1918.

necessary. Poor visibility and mist made observation impossible, so the machine guns fired the barrage in accordance with the scheduled timings.[87] Brutinel praised the work of his machine gunners, and the history of the CMGC notes the 'abundant evidence of the effectiveness of our Machine Gun Barrage.'[88] However, with thousands of shrapnel, high explosive, and gas shells also being fired at the Germans, quantitatively assessing the effectiveness of machine gun bursts was almost impossible. McNaughton, for instance, argued, 'There is no evidence to show that the machine gun barrage was very effective. We must not distort history to carry forward wrong conclusions as to the proper use of this important weapon.'[89] Like Vimy, after-action assessments of the machine gun barrage relied on anecdotal evidence, not statistics.[90] Only so much OR could be conducted without data to substantiate or disprove the hypothesis that machine gun barrages were effective.

The staff of the CMGC thought long and hard about improving machine gun tactics, as did Harris when he had to develop offensive gas procedures for the Canadian Corps. Before the widespread introduction of gas shells, only the Special Brigade, which was controlled by GHQ, had the equipment to disperse gas.[91] However, an increased supply of gas shells in 1917 meant that artillery played an increasingly important role in targeting the Germans with gas.[92] Earlier operations supported by gas had yielded mixed results. 4 Canadian Division launched a four battalion raid against a portion of Vimy Ridge on 1 March 1917.[93] The canister dispensed gas completely failed to subdue the German defenders, and the raid ended in disaster. The BEF had hard learned this lesson at Loos, but there is no evidence that the DGO, Lieutenant H. Beaumont, objected to a plan that completely relied on gas. The Canadian Corps appointed Harris to the headquarters later that month, and the corps never again launched attacks that depended on canister dispensed gas to support the infantry.

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[87]Ibid., November 1918, Appendix G, Commanding Officer 4th Canadian Machine Gun Battalion, 4th Battalion Canadian Machine Gun Corps Report on Operations, 14 October to 6 November 1918, p. 1, n.d.

[88]Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 422.

[89]Quoted in John Swettenham, *McNaughton: Volume 1, 1887-1939,* (Toronto: The Ryerson Press, 1968), p. 153n1.

[90]Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 422.

[91]Palazzo, *Seeking Victory on the Western Front*, pp. 78-79.

[92]Ibid., pp. 164-164.

[93]LAC, RG9-III-D-3, Vol. 4859, File 159, WD – 4th Canadian Division – General Staff, March 1917, Appendix A, Brigade Major 12th Canadian Infantry Brigade, S.G. 4/279, Report on Operations Carried out by the 12th Canadian Infantry Brigade (In Conjunction with the 11th Canadian Brigade) on 1 March 1917, 5 March 1917.

Despite the disappointing results of the gas that supported the raid launched by 4 Canadian Division, the Canadian Corps increasingly used gas in its operations but as part of a wider system that included the artillery, and machine guns. Within a fortnight of his appointment as the corps chemical advisor, Harris met with McNaughton to discuss the use of gas shells for the attack against Vimy Ridge.[94] While weather conditions precluded the use of gas as part of the fire plan on 9 April, the CCGS produced a thorough report on the plan for the chemical bombardment and subsequent use of gas shells during the battle.[95] Although weather affected artillery dispensed gas less than it did canister dispensed gas, high wind would still quickly dissipate an artillery dispensed gas cloud. Harris prepared a useful guide to help gunners plan for engaging the enemy with chemical shells.[96] This guidance also stressed the importance of surprise, since the gas had its greatest effect on German gunners before they had the opportunity to don their respirators. The report also identified that enemy gunners did not need to be killed for the neutralisation to be effective.[97] Dousing their battery positions in poison gas and forcing the artillerymen to don their respirators would hinder their ability to serve their guns. This report identified the shortcomings with *SS134 Instructions on the Use of Lethal and Lachrymatory Shell*, and the revised edition published in March 1918, included all the recommendations made by Harris.[98] It made its way to published doctrine within months, which is a good thing. And it may very well have been practice before it appeared in writing.

After Vimy, the Canadian Corps almost exclusively used gas for counter-battery work. Artillery remained the preferred dispersal method of gas and, by 1918, counter-battery was the most important task for the guns. As the OR conducted by the counter-battery staff office revealed, the operational tempo during the Hundred Days campaign of 8 August to 11 November 1918 did not permit detailed intelligence gathering by multiple sensors that had been possible during static warfare. With limited intelligence on the disposition of the hostile batteries, gas, an area weapon, became increasingly useful for neutralising enemy guns. Major-General Morrison directed that '[g]as concentrations will be freely employed—surprise effect will be striven for—the

[94]WD – Chemical Advisor, Canadian Corps, 7 April 1917.
[95]LAC, RG9-III-C-1, Canadian Corps Headquarters Heavy Artillery, Vol. 3922, Folder 8, File 3, Notes on Artillery preparation and Support of the Attack on Vimy Ridge. April 9th.1917, Captain W.E. Harris, No. 11/58, Report on the Preparation of Gas Shell Bombardments. Canadian Corps – Attack on Vimy Ridge, 9 April 1917, n.d.
[96]WD – Chemical Advisor, Canadian Corps, April 1917, Appendix V, Captain W.E. Harris, Instructions for Firing Gas Shells, 6 April 1917.
[97]Report on the Preparation of Gas Shell Bombardments. Canadian Corps – Attack on Vimy Ridge, 9 April 1917, p. 2.
[98]GS, GHQ, *SS134 Instructions on the Use of Lethal and Lachrymatory Shell,* (France: Army Printing and Stationery Services, March 1918).

best results being obtained by a short and very intense burst of fire.'[99] Harris had made all these recommendations in his operational report on the Vimy battle.

While not all officers in the Canadian Corps embraced gas, the artillery certainly did. During the Hundred Days campaign, the artillery arguably used too much gas. *SS134* advised against engaging areas with gas that friendly troops would occupy, and, generally, the infantry did not penetrate far enough into the enemy's depth to seize the hostile battery positions.[100] The September 1918 introduction of the British mustard gas shell, which was a more persistent agent than other gases, proved particularly useful for engaging static targets, like hostile batteries. The agent continued to harm soldiers even after they put their gas masks on. Due to the persistence of mustard gas, the GOC Royal Artillery retained authority for its use.[101] Generally, the Canadian Corps does not seem to have been overly concerned about its infantry fighting through and consolidating in chemically contaminated areas. Before the assault on Bourlon Wood on 27 September 1918, the artillery saturated the forest with 17,000 gas shells over fifteen days before the attack and another 7,600 after zero hour.[102]

While the CCGS continued to conduct some OR throughout this period, the collection of data for the offensive use of chemical weapons proved difficult. With his limited staff, Harris could not conduct post-battle data collection in the same way that the more numerous counter-battery staff office could do. Nor could his officers determine the effects of gas because its effects did not last. There were no gas craters to analyse. Other than captured German documents or prisoner interrogations, the chemical advisor had to rely on anecdotal evidence about how effective the German defensive fire was to determine how well the gas bombardments worked. Assessing protective measures and anti-gas training was a little easier, however, because Harris and his staff could always monitor Canadian gas casualties reported by the Canadian Army Medical Corps. A spike in the number of casualties could indicate poor gas discipline, ineffective protective equipment, a new German tactic, or a new agent. In any case, further data could be collected, analysed, and mitigation measures implemented. On 3 December 1917, the CCGS disseminated a new directive to the divisions warning them that the Germans would soon likely use gas dispensed by

[99]LAC, MG30-E81, Major-General Sir Edward Whipple Bancroft Morrison Fonds, Vol. 2, Artillery Corps, Orders and Instructions, September – December 1918, GOC RA Canadian Corps, O.907/2 O.2, Canadian Corps Artillery Policy, p. 1, 3 October 1918.
[100]GS, GHQ, *SS134*, p. 11.
[101]Canadian Corps Artillery Policy, p. 1.
[102]Cook, *No Place to Run*, p. 204.

trench mortar.[103] The directive warned that the Germans could form dense clouds of gas with minimal warning and stressed the importance of maintaining discipline and continual anti-gas training. On the night of 8-9 December, the Germans bombarded 2 Canadian Division with a mixture of gas and high explosive shells.[104] The DGO investigated the bombardment and presented his findings in a detailed report similar to the report that 2 Canadian Divisional Artillery gas officer had submitted to Harris in September 1917.[105] The division sustained no gas causalities, and the 'Gas-proof dugouts gave excellent protection.'[106] The new procedures and techniques that Harris had recommended less than a week before had paid off. The CCGS again revisited its procedures after the Germans inflicted several gas casualties on 30 December. An investigation revealed that due to the cold weather the gas casualties had failed to remove their woollen caps before donning their respirators, which resulted in a poor seal.[107] Within one day, Harris circulated a letter throughout the Canadian Corps reinforcing the importance of properly conducting anti-gas drills.[108] This quick observation-hypothesis-action cycle was OR at its best.

Like the CCGS, the staff of the CMGC also had difficulty quantifying the effects of a machine gun barrage. Unlike shellfire, which left craters and damage to equipment, the effects of indirect machine gun fire could not be easily determined or measured. One British machine gun officer noted, 'The general result must be regarded as probably considerable but certainly incalculable.'[109] Furthermore, the CMGC rarely had enough forward observers to adjust fire and provide battle damage assessments. That situation did not improve. It did not help that the artillery, as an institution, did not believe in the efficacy of indirect machine gun fire. McNaughton proved most critical:

> I was all for employing machine-guns to fire indirectly on the appropriate occasion but the trouble was, once you had this art of indirect fire, or at least once you thought you had it, the tendency was to use it when it wasn't apt. The

[103]WD – Chemical Advisor, Canadian Corps, December 1917, Appendix A, Captain W.E. Harris, Chemical Advisor, Canadian Corps, 9/142 Circular regarding use of T.M. Gas shells similar to British projectors by the enemy, 3 December 1917.
[104]Ibid., 9 December 1917.
[105]Ibid., Appendix B, Captain A.B. Campbell, D.G.O., 2nd Canadian Division, Report on Gas shell bombardment area of 2nd Cdn. Divsn. on 8/9-12-17, 10 December 1917.
[106]Ibid.
[107]Ibid., 31 December 1917.
[108]Ibid., Appendix K, Captain W.E. Harris, Chemical Advisor, Canadian Corps, No. 7/149 Letter Regarding adjusting of S.B.R. while wearing woollel [*sic*] caps, 31 December 1917.
[109]R.M. Wright, 'Machine-Gun Tactics and Organization,' *The Army Quarterly* Vol. I (January 1921): p. 294.

> machine-gun, you must never forget, is a weapon of opportunity. If it gets one burst in against a few Germans coming up in a file, or something of that sort, it's paid for itself. But you can fire thousands of rounds in indirect fire and the Germans wouldn't even know they'd been fired at because they're usually scattered over too wide an area and the bullets would merely prick the air. The expectation of a kill is low and, unlike a shell, the danger space is very short.[110]

Even some machine gun soldiers questioned its effectiveness. Despite their use of motor transport to move to different sectors of the front, the machine gunners often had to carry their guns and ammunition forward on mules or their backs. While the engineers built light rail to keep the guns supplied with shells, the five million round fireplan fired by the CMGC at Vimy relied on soldiers moving the ammunition forward on foot. That was a strain.[111] Private Donald Fraser's comment on machine gun indirect fire is telling:

> Tonight I shot away a couple thousand rounds of indirect fire. Indirect firing is not very satisfactory - you cannot see the target and, of course, do not know what damage, if any, is done. Besides, the belts have to be refilled and it is a blistery job forcing shells in with the palm of the hand without a protective covering.[112]

The evidence used to substantiate the effectiveness of machine gun barrages is somewhat sparse. Quantitative assessments of the technique are limited to behind-the-lines studies like the one conducted on the wet beach sand at low tide. After-action studies invariably relied upon anecdotal or at times questionable evidence. Even the metric used to determine that indirect machine gun fire prevented the resupply of German trench mortars at Vimy was questionable. Mortar bombs are not artillery shells. When a mortarman drops a bomb down the tube, there is no empty casing like there are for artillery pieces that would accumulate around the gun. Intelligence officers collected most information from prisoner interrogations. During Passchendaele, 31 July to 10 November 1917, one report noted 'Prisoners of the 76th Fus[ilier]. Reg[imen]t. state that the 111th Div[ision]. which sustained our attack on the 26th Oct. suffered very severely both from our artillery and M.G. barrages, the

[110]LAC, MG30-E133, General Andrew George Latta McNaughton Fonds, Vol. 358, J.A. Swettenham, Transcripts of Tapes of General McNaughton's Recollections of the First World War (Flanders Fields Transcripts), Tape 7, pp. 9-10, 17 January 1963.
[111]Papers of Private Richard William Mercer, 'Randall Hansen Transcript,' October 1970, courtesy of Dwight Mercer. The author is grateful to Dwight Mercer for the provision of this reference.
[112]Reginald H. Roy, ed., *The Journal of Private Fraser, 1914-1918: Canadian Expeditionary Force,* (Victoria: Sono Nis Press, 1985), p. 251.

counter-attacks of the supporting batt[alio]ns being particularly severely handled.'[113] Other reports cast doubt on the effectiveness of the machine gun tactic. After Valenciennes on 1 to 2 November 1918, McNaughton asked the artillery intelligence officer to scrutinise the claims that the GOC CMGC had made about the effectiveness of the machine gun barrage. 'I told our intelligence officer to ask every prisoner of war whether, in marching up to counter-attack, he had come under machine-gun fire. We couldn't get a German prisoner from any of the counter-attacking battalions to say that he even knew he was being fired at.'[114] Reports from Canadian infantrymen are similarly contradictory. To the infantry, fire support is fire support, and it would be impossible to distinguish between effects on the enemy from shellfire or a machine gun barrage with thousands of guns simultaneously firing. The most that these studies concluded about indirect machine gun fire was that it likely had some effect on the enemy, especially when it came to re-entering artillery-damaged areas to do repairs, but that the logistical requirements to sustain the technique made it inefficient compared to the use of artillery.

Conclusion

Despite the OR studies done by the CMGC to develop the machine gun barrage and improve its effectiveness, machine gunners did not conduct indirect fire after the First World War. Brutinel had returned to his residence in southern France and resumed his banking career after the war.[115] Without its forceful patron, the independence of the CMGC became increasingly doubtful, especially considering the British began disbanding their Machine Gun Corps in 1919.[116] In 1936, the Canadian Militia disbanded the CMGC and reassigned some infantry battalions as machine gun battalions.[117] Without practice, the ability to conduct indirect fire waned. Brutinel regretted this deterioration of the skill set and noted: 'It is evident that the doctrine of the Canadian Machine Gun Corps will be also forgotten until the next Blood letting when it may have to be learned again, perhaps at a great cost.'[118] During the Second World War, First Canadian Army retained one machine gun battalion per infantry division; however, these machine gunners no longer fired their weapons as part of a barrage. Nor did they attempt to relearn how to fire machine gun barrages. McNaughton may have been responsible for this loss of capability since he had never really believed in

[113]LAC, RG9-III-D-3, Vol. 4854, File 142, WD 3rd Canadian Division – General Staff, November 1917, Appendix 996, 3rd Canadian Division Summary of Intelligence From 12 noon 1st to 12 noon 2nd November 1917, p. 2.
[114]'Flanders Fields Transcripts,' Tape 9, p. 14, 15 February 1963.
[115]Pulsifer, Canada's First Armoured Unit, p. 56.
[116]Bidwell and Graham, *Fire-Power*, p. 193.
[117]Grafton, *The Canadian Emma Gees,* pp. 216-218.
[118]The Raymond Brutinel Tapes, Tape 17, p. 1.

the effectiveness of the tactic.[119] He served as Chief of the General Staff from 1929 until 1935 and as commander of First Canadian Army until December 1943, so he had the authority to stifle all attempts to revive the technique. The infantry used machine guns only for direct fire during the Second World War. Except for infantry mortar platoons, only the artillery conducted indirect fire.

The CCGS had an even shorter existence than the CMGC. Harris issued his final order telling soldiers to carry their respirators on their person on 20 December 1918, and the gas services were disbanded one month later.[120] Despite the disbandment of the Directorate of Gas Services on 22 May 1919, the British continued to study chemical warfare, and Winston Churchill, then the Secretary of State for the Colonies, even proposed using it against Afghan tribesmen on the Northwest Frontier.[121] While the British did not use gas in their small wars, a July 1919 report stressed the importance of peacetime preparation. 'Ample and generous provision must be made for the continuous study of chemical warfare both as regards offence and defence during peace, in order to ensure the safety of the fighting forces of the Empire.'[122] Several officers in the Canadian Corps had recommended forming gas companies, like the British Special Brigade. However, the Ministry of Overseas Military Forces of Canada never acted on the recommendation, so Canada had no offensive gas capability other than the artillery.[123] Even the defensive expertise of the CCGS lapsed. Despite concerns over the stockpiles of chemical weapons maintained by some countries, the Canadian Militia had no money or staff during the interwar period for chemical warfare OR.[124] Fortunately, combatants did not use chemical weapons against each other during the Second World War. Nevertheless, Canadian soldiers continued to undergo anti-gas training, and the Canadian government established the Chemical Warfare School in Suffield, Alberta, to continue research.[125] The technology and procedures for defence against chemical warfare had advanced little since the Great War.

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[119]Schreiber also arrives at this conclusion. Schreiber, *Shock Army of the British Empire*, p. 82.

[120]WD – Chemical Advisor, Canadian Corps, 20 December 1918.

[121]Richter, *Chemical Soldiers*, p. 214; and Marion Girard, *A Strange and Formidable Weapon: British Responses to World War I Poison Gas,* (Lincoln and London: University of Nebraska Press, 2008), p. 182.

[122]The National Archives, Kew, WO 33/3114, War Office, Report of the Committee on Chemical Warfare Organization, p. 1, 7 July 1919.

[123]Cook, *No Place to Run*, p. 143.

[124]C.P. Stacey, *Arms, Men and Governments: The War Policies of Canada, 1939-1945,* (Ottawa: Queen's Printer, 1970), p. 3.

[125]C.P. Stacey, *Official History of the Canadian Army in the Second World War, Volume I, Six Years of War: The Army in Canada, Britain and the Pacific,* (Ottawa: Queen's Printer and Controller of Stationery, 1955), pp. 136, 240, 246.

During the Second World War 21 Army Group's No. 2 Operational Research Section did not do any OR on indirect machine gun barrages or chemical warfare because the British and Commonwealth armies did not use these methods. Indeed, the only differences between the operational researchers in the Canadian Corps of the First World War and the No. 2 Operational Research Section of the Second World war were those of organisation and nomenclature. No. 2 Operational Research Section existed in the army group headquarters to conduct operational research. That was the only task for its staff. This staff was larger than the combined staffs of the CMGC and the CCGS, which both had primarily to deal with operations. Also, the specialised staffs of the Canadian Corps did not have a specific term that described their methodology. No. 2 Operational Research Section did - operational research.

Like the staff of the Canadian Corps counter-battery staff office, the officers of the CMGC and CCGS conducted OR as we now understand it. This examination is limited to two specialised staffs in the headquarters of the Canadian Corps. Further enquiry covering the entirety of the BEF is warranted to determine how uniformly other corps also conducted OR during the First World War, if at all. Armies had not used gas or machine gun barrages on the battlefield before 1915. However, by 1918, the Canadian Corps had mastered both and incorporated these techniques into its fire plans. In the intervening years, gas officers needed to develop countermeasures to enable Canadian troops to survive on the chemical battlefield and develop doctrine on how gas could be used offensively by the corps. Unlike the case of counter-battery artillery, the experimentation was more ad hoc and relied upon statistical analysis of gas casualties to gauge the effectiveness of countermeasures. Anecdotal evidence provided data for the analysis of the effectiveness of chemical bombardment. Similarly, OR on the use of machine guns firing in an indirect role could have benefited from more numerical analysis. Still, however imperfectly they may have performed OR, the staffs of the CMGC and CCGS adhered to the principles of the discipline and used the OR methodology to collect and analyse data, test solutions, and solve the novel problems that confronted them on the Western Front.

The Battle of Hamel: An 'All Arms Battle' or 'AIF Small Arms Fire Superiority'?

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ABSTRACT
This paper examines the origins and evolution of Australian Imperial Force (AIF) *overhead machine gun fire tactics and how success correlated not just with its presence, but failure in its absence, throughout the First World War. The machine gun tactics used in the capture of the northern half of the Hamel objective on 4 July 1918 are used as an example as to why this correlation may also be causal.*

Introduction

One of the greatest tactical constraints during the First World War was overcoming water-cooled, recoil-operated machine guns used in defense. These guns were based on Hiram Maxim's 1884 patent and could be found distributed in all theatres. Often used in depth and with interlocking fields of fire they proved a major tactical obstacle to attacking forces.[1] How the troops of the AIF overcame at least 171 of these weapons at the 1918 Battle of Hamel has long been interpreted through the lens of that battle's architect, Sir John Monash.[2] He likened his role in the Battle of Hamel to that of a conductor of a symphony where 'the various arms and units are the instruments, and the tasks they perform are their respective musical phrases'.[3] However a detailed analysis of the machine gun tactics used by the AIF in the later battles of 1918 suggests that suppression of German MG08 machine gun fire was

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[1]As distinct from gas driven weapons such as the Lewis and Colt M1898 guns which are, technically speaking, automatic rifles rather than machine guns. The Germans did not widely use automatic rifles during the war and relied almost exclusively on weapons based on Maxim's design.

[2]171 MG08s and the lighter bipod mounted MG08/15s were captured at Hamel.

[3]Sir John Monash, *The Australian Victories in France in 1918,* (London: Hutchinson, 1920), p. 56.

achieved by Vickers machine guns grouped in batteries connected via telephone, visual means, and wireless, and operating under centralised control. Such batteries became in effect a single, much larger weapon that was used by the 4 Australian Division to target points of resistance during its advance. It was through this and other tactics that the 4th Australian Machine Gun Battalion (4 AMGB) exerted small arm's fire superiority over their German counterparts during the latter stages of the war on the Western Front in 1918, a period now referred to as The 100 Days.[4]

A detailed study of the wartime service and tactics of the author's grandfather, Lt. Bernard O'Reilly and his unit, the 12th Australian Machine Gun Company (12 AMGC) yields two notable observations, that they, and other machine gun units, became demonstrably more skilled at avoiding artillery fire as the war progressed, and that their use of overhead machine gun fire can be correlated with success in attack while an absence can be correlated with failure.

It should be noted that long range artillery is largely ineffective at suppressing the fire of handheld weapons because they are difficult to locate and, even if you can, they are difficult to eliminate, especially when well dug in.

From the AIF's first days at Gallipoli in 1915 their machine gunners had also noted how large calibre naval shells often hurled 'men high into the air' but 'fortunately, no one was hurt'.[5] Similarly, AIF Machine Gun Company (MGC) units engaged on the Somme in 1916 noted how few casualties they suffered there despite the intensity of the shelling.[6] Though artillery is generally accepted to have been the First World War's principal killer, it rarely eliminated the machine guns of 12 AGMC when they were dug in. Nor could artillery expect to destroy the shell holes which both side's machine guns frequently used as protected firing positions away from the trench system.

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[4]See Battles of Hamel, Amiens and 18 September. The National Archives (hereinafter TNA) WO 158/332, Narrative of Machine Gun Operations IV Army April to November 1918 Part 1.

[5]George Franki & Clyde Slatyer, *Mad Harry – Australia's Most Decorated Soldier*, (Sydney: Kangaroo Press, 2003), p. 244.

[6]Australian War Memorial (hereinafter AWM) AWM4 24/6/6 1st AMGC War Diary, 21 July 1916; AWM4 24/7/3 2nd AMGC War Diary, 26 July 1916; Lt WA Carne, I*n Good Company – Being a Record of the 6th Machine Gun Company A.I.F 1915-1919*, (Melbourne: 6th Machine Gun Company (A.I.F.) Association, 1937), p. 85; Clifford Sharman, 'Memoirs of Private 1172 Clifford Sharman, 26th Battalion, AIF, Part 1,' *DIGGER*, No. 78, (Dubbo, NSW: Families and Friends of the First AIF Inc, March 2022): p. 3-14.

At no time during the war did German artillery exert any significant interference on 12 AMGC's fire. Under their heaviest bombardment of the war, only 4 out of the Company's 16 guns were suppressed during major counter attacks to retake the Pozieres Ridge between 5-7 August 1916.[7] This suppression of only 25% of the machine guns on a brigade front was well short of the at least 80% that was achieved in the success at Hamel and other 100 Days battles.[8] Holding the high ground near where the Pozieres Tank Memorial now stands, then Corporal Bernard O'Reilly was 'repeatedly blown in' and buried, including twice while firing, but he retained his grip on the weapon, and soon after he and another survivor quickly ended an attempt by the 1st Company of German Infantry Regiment (IR) 63 to recapture *Höhe 161*.[9] Their experience was that high explosives were not particularly effective against dug in machine guns, and cover from shrapnel could easily be achieved by keeping low, while gas rarely, if ever, knocked out an entire crew and weapon.[10] Only while moving in the open with heavy loads were they vulnerable to artillery, and in particular to shrapnel.

However, machine guns were susceptible to suppressive fire from other machine guns because their projectiles did not explode on impact, so it was not exactly clear either when these intermittent barrages of bullets had started or when they had finished. Artillery fire can be seen and heard from miles around, while machine gun fire is heard and felt only by those under fire, often leading them to believe they are under observation when in fact they might only be reference points on a map. Furthermore, with their long narrow beaten zones, a battery of machine guns suppresses fire over a much larger area than an equivalent number of artillery pieces.[11] This fire remained largely unreturnable as the recipients had no way of determining the exact point from where that fire was coming.[12] By Third Ypres in 1917, the German High Command

[7]AWM4 24/17/5 12th AMGC War Diary, 5-9 August 1916.

[8]At Hamel, less than a dozen machine guns are reported as opening fire during the battle on the Australian 4 Division front. A similar number occurred on the Australian 2 Division front out of a total of 177 MG08s captured, plus an unknown number withdrawn in the face of advancing enemy.

[9]Pte. F.F. Wood MM. 'other survivor'; AWM28 1/180 Part 2, Cpl Bernard O'Reilly, Medal citation for Russian Cross of St George; Jack Sheldon, *The German Army on the Somme 1914-1916*, (Barnsley: Pen & Sword Military, 2016), pp. 230-234. Account of Lt Zinnemann in attack on *Höhe 161*, the site of Tank Memorial at Pozieres,

[10]Machine gun crews were usually issued the best respirators available, mostly box type when available.

[11]At Third Ypres in 1917 eight Vickers were used to cover a 250 yard x 250 yard square area.

[12]A change in fall of less than 1° at 1,500 yards range equates to more than a 100 yard difference using Mark VII ammunition. That is to say, it is very difficult for someone

had been forced to use low flying aircraft in attempts to spot the muzzle flashes of such machine gun batteries.[13]

By 1918, both sides were making extensive use of overhead fire to suppress enemy machine gun defences. During the *Kaiserschlacht* of 1918 at the Second Battle of Dernancourt, two sections of 24 AMGC were pinned down by long-range machine-gun fire and eight Vickers guns were captured without firing a shot in two separate actions by elements of the German 3 Jäger Battalion and RIR 262.[14]

The development of overhead machine gun fire

The 4th, 12th, 13th and 24th AMGCs were part of 4 AMGB, whose commander was at that time probably the most famous man in the AIF, Lieutenant Colonel Harry Murray VC CMG DSO and Bar DCM. Murray had been a lance corporal at Gallipoli when two British Army graduates of the School of Musketry at Hythe, Captains Jessie Wallingford and John Rose, first 'brigaded' the Anzac Division's machine guns together in the opening weeks of the campaign.[15] This grouping of machine guns acting as a single weapon took place six months before 9 (Scottish) Division and 47 (London) Division did at Loos and was well over 12 months before the rest of the British Expeditionary Force (BEF) formed MGCs in 1916.[16] This put the Australian 4 Brigade and its subsequent formations, on a tactical evolutionary pathway that would end as a text book example, given by Field Marshall Archibald Montgomery, as to how machine gun operations were conducted by the Fourth Army during the 100 Days.[17]

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under fire to determine whether a stream of bullets is arriving at 3 or 4 degrees to the horizontal, being the difference between 1,500 and 1,600 yards range.

[13]CE Crutchley, *Machine-Gunner 1914-1918,* (Northampton: Crutchley, 1973), p. 110; Mjr HT Logan MC and Capt MR Levey, *The History of the Canadian Machine Gun Corps*, unpublished manuscript, (Ottawa: Canadian Expeditionary Force – War Narrative Section, 1919), p. 206.

[14]AWM30 B10.5, Cpl CW Lane and Pte RC Ruschpler, Statement by Escaped Prisoners of War, 30 April 1918.

[15]Comprising New Zealand forces and the Australian 4th Brigade under then Col John Monash.

[16]Lt Col Graeme Seton Hutchinson, *Machine Guns – Their History and Tactical Employment*, (Uckfield: Naval and Military Press, 2004), p. 141, 9th Division; SS147 Machine Gun Notes No. 2, Appendix 32 – Notes on Employment of Machine Gun Batteries During Recent Operations, September 1915, (Washington: War Department, Feb 1918), p. 234. 47th Division

[17]Maj Gen Archibald Montgomery, *The Story of the Fourth Army – in the Battles of the 100 Days*, (Uckfield: Naval & Military Press, 2008), Appendix J - Notes on Machine Gun Organisation and Tactics, pp. 334-335. Actions of the 4 AMGB 18 Sept 1918.

Despite battalion officers at Gallipoli wanting 'to use them constantly for any little thing', Wallingford and Rose recognised the enormous defensive advantage of a co-ordinated approach to the use of machine guns across the Corps front in the 'small range of ground' at Anzac Cove.[18] This reconfiguration took place sometime before 13 May 1915, and put all the Anzac guns well behind the front trenches in only three locations, and doomed all subsequent enemy attacks down the exposed forward slopes, thus solving the 'problem of Monash Valley' in a way not properly understood by the Official Historian.[19] These defiladed positions further back were much harder to hit with a high velocity weapon, thus making the fire more difficult to suppress and the position safer for the gunners, whose casualties had been high and who could not quickly be replaced. The 'cricket pitch' gap at the crest of the ridge, between the Allied held Quinn's Post and the Ottoman held Bomba Sirta, had more than a dozen guns pointing at it from at least five directions.[20] At no point during the campaign could either side effectively neutralise the fire of these positions which posed a much greater threat to an attack than the defenders in the trenches of the objective. Furthermore, both sides began training their guns on their own trenches, ensuring that if in the event of their loss, they could not be held for long.[21]

Wallingford, Rose and the quick learning Murray also knew that, unlike their commanders who desperately wanted the high ground, guns sited down low might have an advantage over those sited up high, an idea independently implemented six

[18]Mjr Jesse Wallingford, Personal Diary, Private Collection, entry 3 May 1915. 'any little thing'; Mjr. John Rose, Personal Diary, Private Collection, entry 16 May 1915. 'small range'; and entry 8 May 1915. Describes losing guns because they are too far forward.

[19]Rose, Diary, entry 13 May 1915. Map showing 4 Brigade machine gun positions in Monash Gully, four on Russell's Top, four at Pope's Hill and two at Steele's Post; C.E.W. Bean, *Official History of Australia in the War of 1914-1918*, Vol. II: *The Story of Anzac,* 3rd Edition, (Sydney: Angus & Robertson Ltd, 1935), Chapter IV The Problem of Monash Valley. Hereinafter OHA Vol II. Describes the seemingly precarious position due to the closeness of the trench systems of the two sides.

[20]Capt. Cyril Longmore, *The Old Sixteenth – Being a Record of the 16th Battalion, A.I.F., During the Great War 1914-1918*, (Victoria Park, Western Australia: Hesperian Press, 2007). Describes the trenches at Quinn's Post being separated by twenty yards 'the length of a cricket pitch'. Machine guns known to be aiming between Quinn's and Bomba Sirta were located at Russell's Top (Allied: 450 yds WNW), Pope's Hill (Allied: 200 yds NW), Chessboard (Ottoman: 400 yds NNE), Baby 700 (Ottoman: 800 yds NNW) and German Officer's Trench (Ottoman: 300 yds SSW).

[21]Q.M.T.M. "Reminiscences of a Staff Officer." *Chronicle,* (Adelaide, South Australia), 28 September 1933. p. 48.

months later by the 'fireman of the western front', Fritz von Loßberg.[22] He conceived the death traps into which the French fell in the 2 Battle of Champagne in September 1915.[23] By 1917, large parts of the Hindenberg Line, including the section attacked by the AIF at Bullecourt, were designed around this important principle.

Aggregated guns could also be used to exert small arm's fire superiority over the enemy during an attack, Wallingford used ten guns while Rose used eight in support of an ill-fated attempt to establish a continuous line on 2 May 1915.[24] As the 'Mad Major' Lt Col Graeme Seton Hutchinson observed,

> No high military authority at Gallipoli seems to have informed the War Office that the decisive factor in offensive warfare was the machine gun. The more the student examines ground and maps and dispositions the more overwhelming appears this contention as applied to Gallipoli.[25]

It was also found that in the hands of a skilled operator a stable tripod mounted weapon could be set to fire close above the heads of the forward troops. At Quinn's Post the parapet was frequently raked by their own guns from Russell's Top and Pope's Hill during attacks while the defenders tried to keep their heads down and deal with the occasional attacker that made it into the trench system, though few did.[26] This informally derived tactic proved to be superior to the standing orders to 'man the parapet' during an attack and led to an accumulation of bodies so thick in front of Quinn's it required an armistice to deal with the '8 acres of dead'.[27]

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[22]Timothy Lupfer, *The Dynamics of Doctrine: The Change in German Tactical Doctrine During the First World War*, (Fort Leavenworth, Ka: Combat Studies Institute, U.S. Army Command and General Staff College, 1981), p. 10. 'fireman of the western front'

[23]Fritz von Loßberg, *Lossberg's War: The World War I Memoirs of German Chief of Staff*, (Lexington: The University Press of Kentucky, 2017), p. 175.

[24]Paul Cornish, *Machine Guns and the Great War*, (Barnsley: Pen & Sword, 2009), pp. 66-67. Raymond Brutinel of the CEF claimed to have arranged the first barrage on 2 September 1915, four months after Wallingford and Rose; Wallingford, Personal Diary, entry 2 May 1915. 'ten guns'; Rose, Diary, entry 8 May 1915. '8 guns.'

[25]Hutchinson, *Machine Guns,* p. 169.

[26]AWM S0118 Pte William Fitzpatrick MM, Interviewed 1974. 'We stayed in the trenches, but weren't allowed to look over. No not allowed to look……and our machine guns just wiped them out. I can see it happening now'.

[27]AWM4 1/25/2 PART3 General Staff Headquarters Australian and New Zealand Army Corps War Diary, May 1915, Part 3. p. 23. Memorandum Brigadier-General General Staff A. & N.Z.A.C to Headquarters Australian Division and N.Z. & A Division. Stating in reference to the deepening of the trenches at Quinn's 'this interferes

In 1917 the BEF adopted a safety margin of 60 feet clearance for overhead fire whereas during the 1905 Russo-Japanese war, the Japanese had found around 10 feet to be an acceptable risk.[28] It is not clear what clearance the AIF eventually used as no one seems to have written it down, but it was significantly less than the standing orders. During the complicated leapfrog manoeuvre at Messines the 12 AGMC appear to have allowed for about six feet or less.

The closeness of their fire was one of the sources of the tactical advantage they held over the Germans throughout the war. By comparison, it took until June 1918 for one German brigade to recognise its importance:

> Posts which are in shell holes or in the entanglement should get accustomed to our machine guns firing over them, as this fire is practiced for their protection.[29]

The extreme topography of Gallipoli had armed some, but not all, of the Anzac troops destined for the Western Front with different machine gun tactics to the BEF. From the start, success began to correlate with the close overhead covering machine gun fire that some of them had used at Gallipoli. A New Zealand Expeditionary Force (NZEF) raid on the night of 1-2 July 1916 found the Germans 'in a cowed condition, sheltering low behind the parapet'.[30] 1 Australian Division mounted the 'most successful' raid of the same evening under the cover of the 3 AMGC with four guns firing indirectly between 2,000 and 2,600 yards range placing an impenetrable screen of fire between the front and reserve trenches, a crude precursor to the 'SOS fire' that would be first seen around Pozieres later in the month.[31]

At this time elements of the German Army also experimented with overhead fire tactics, 4 AMGC noting three MG08s searching for one of their positions in early July

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considerable (sic) with the possibility of getting out of the trenches to meet a bayonet attack or to counter attack'; Stanley, *Quinn's Post,* p. 66. '8 acres of dead'.

[28]Lecture by Lieut. Col. R. V. K. Applin, D.S.O., 14th King's Hussars, British General Staff. January 10, 1918. *Tactics of the Machine Gun*. Infantry Journal, Vol XIV, No 10. (Washington, D.C.: The United States Infantry Association, April 1918), p. 758.

[29]AWM4 1/35/5. Australian Corps War Diary, July 1918, Pt 1, Appendix 10. Translation of captured German order.

[30]C.E.W. Bean, *Official History of Australia in the War of 1914-1918*, Vol. III: *The AIF in France 1916,* 4th Edition, (Sydney: Angus & Robertson, 1936 (hereinafter OHA Vol III), pp. 272-3. ' low behind the parapet'.

[31]OHA Vol III, pp. 272-3. 'most successful'; AWM4 24/8/5, 3rd AMGC War Diary, 1-2 July 1916. Machine gun scheme for raid; Cornish, *Machine Guns and the Great War*. pp. 67-68 & picture 12. Emergency Indirect Fire SOS fire taught at Grantham.

1916.[32] However this practice was discouraged under Falkenhayn and Ludendorff who both urged the conservation of ammunition until at least May 1917, leaving the Germans well behind in employing those tactics.[33]

The unexpected capture of Pozieres by 1 Australian Division, on the fifth attempt, led Gen Hubert Gough to make enquiries about the division's use of 'indirect fire from Maxims' and 'the system we had used with effect in Gallipoli'. Future Field Marshal and 1 Australian Division GSO3 Col Thomas Blamey gave a concise explanation of the mechanics of what they had done, adding,

> Information from prisoners showed that they suffered many casualties and were in constant dread of this fire.[34]

The German Reserve Infantry Regiment (RIR) 84 at Pozieres concurred:

> The 'English' also have built in covered machine guns, which graze the edges of our trenches with indirect fire. Our men pressed themselves against the trench walls and let the spluttering bullets strike into the mud only a hand's breadth away from themselves. Many a one is caught, mostly shot through the head or throat. In vain we wait for the ration party.[35]

In contrast, none of 2 Australian Division raids around Fleurbaix included this fire, with some machine gunners even participating as infantrymen during the attack.[36] Nor did this division use this tactic in its failed attempt on the Pozieres Ridge on 29 July 1916, despite 1 Australian Division's success in capturing the town. Birdwood would publicly blame the unbroken wire for their failure, but by the time of their second attempt on 4 August 1916, someone had added ten machine guns to give long range covering fire, four in enfilade and six front on, which again coincided with success in

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[32]AWM4 24/9/1 4th AMGC War Diary, 4 July 1916.

[33]Loßberg, *Lossberg's War*. p. 235. Falkenheyn emphasised tight fire discipline 'we must conserve our personnel and ammunition', Cornish, *Machine Guns and the Great War.* p. 103. 'By 20 May (1917) Ludendorff himself was endorsing the use of indirect fire'; AWM4 1/33/14 PART2 2 Anzac Corps Intelligence War Diary, June 1917. p. 10. Translation of German MG document underlined 'Ammunition is very valuable and can only be replaced with great difficulty'.

[34]AWM25 381/19 Gunnery – Notes and policy regarding the employment of machine guns. Correspondence between Sir Neill Malcolm, Cyril Brudenell White, Thomas Blamey and others about 1 Australian Division machine gun tactics, 7 August 1916.

[35]Carne, *In Good Company,* p. 88. Quoted by Carne from RIR84 history *(Klaehn)* from Pozieres around late July 1916.

[36]Ibid. p. 70.

the infantry capturing all their objectives.[37] 2 Australian Division had not arrived at Gallipoli until late August and some of their machine gunners had left the peninsular without even firing a shot.[38]

5 Australian Division, had numerous Gallipoli veterans in its formation from 1 and 2 Australian Brigades and were either overruled or had not considered the matter properly. Except for some direct flanking fire, then later during the withdrawal, few of its machine guns even opened fire during the AIF's worst disaster at Fromelles on 19 July 1916.[39]

In the first use of tanks advancing down *Höhe 161* on 15 September 1916, the New Zealand Division, the Canadian Corps and 47 (London) Division all used overhead covering machine gun fire in the capture of their objectives.[40] 47 Division achieved their feat 'without proper artillery support due a decision by III Corps'.[41] By the end of 1916, machine guns had begun to be organised at higher levels than brigade within the BEF.

Whilst the tactics also soon became commonplace in all AIF attacks, it was 4 Australian Division, who made the most significant advances towards the small arms fire superiority that was exerted over the Germans during the 100 Days. In particular 12 AGMC, whose first commanding officer was another Hythe graduate, Capt Edgar Sawer. His scientific approach and experience as part of the covering force landing at Gallipoli established a framework of disciplined learning and innovation that continued

[37]Ibid. p. 92. Company orders were to 'provide indirect fire on the second objective for two minutes after zero, then switch to a line covering the left flank of the attack'.
[38]Sharman, *Memoirs*. p. 3-14.
[39]AWM4 24/13/2 8th AGMC War Diary, July 1916; AWM4 24/19/1 14th AGMC War Diary, July 1916; AWM4 24/20/5 15th AMGC War Diary, July 1916. None make mention of any indirect fire and only one company gives fire orders for some direct flanking fire.
[40]Mjr J.H. Luxford, *With the Machine Gunners in France and Palestine – The Official History of the New Zealand Machine Gun Corps in the Great War 1914-1918*, (Auckland: Whitcombe & Tombs Ltd, 1923), pp. 38-45; Logan and Levey, *The History of the Canadian Machine Gun Corps*, p. 45; TNA WO 95/2732/4, 140th MGC War Diary, September 1916. p. 25. Three sections of 140 MGC giving overhead indirect fire; TNA WO 95/2744/3, 142nd MGC War Diary, pp. 47-48. One section 142 MGC giving overhead indirect fire; TNA WO 95/2739/1 141st MGC War Diary, September 1916. It is not clear whether two sections of the 141 MGC also engaged in indirect overhead fire. File 4, p. 109.
[41]*The 47th Division*. Stand To!, The Journal of the Western Front Association, Volume No. 32, 1992, p. 12.

throughout the war under subsequent commanding officers. Their biggest leap forward was made in the highly unusual circumstances at Bullecourt, where they participated in probably the largest 'artileriless' attack of 1917 when General Hubert Gough hurriedly ordered them to capture a large section of the newly constructed *Siegfriedstellung*.[42] On the 10 April 1917 62 (West Riding) Division, well supported by artillery and Liven's gas projectors, but unsupported by machine guns, attacked the fortified town of Bullecourt without making progress past the first line of wire.[43] The next day 4 Australian Division on their right, and supported by machine guns and thinly armoured training tanks, captured and held most of the first two lines for about six hours, before being forced to retire.[44] On the left half of the attack, 12 AMGC and other units under their control, had given sufficiently good covering fire for 46 Australian Battalion to capture its objective in less than an hour, having left half an hour late in near broad daylight while waiting for tanks that did not arrive on time, and when they did, opened fire on them after which they broke down.[45] 48 Battalion following had even less difficulty getting to the second line, despite a 1,000 yard advance into a re-entrant with the still occupied town of Bullecourt 300 yards on their left and the attack having 'enjoyed no tactical surprise whatsoever'.[46] Importantly, they

[42]A light bombardment was made on the town itself, but ceased at 5 a.m.

[43]Jonathon Walker, *The Blood Tub – General Gough and the Battle of Bullecourt, 1917*, (Staplehurst: Spellmount, 1988), p. 87. Wurtemburgers of the I/120 IR suffered almost 200 gas casualties 10 April 1917. 4 Australian Division had called off their attack 10 April 1917 because of the non-arrival of tanks but had failed to notify the 62 (West Riding) Division.

[44]C.E.W Bean, *Official History of Australia in the War of 1914-1918*, Vol. IV: *The AIF in France 1917,* 3rd Edition, (Sydney: Angus & Robertson, 1935), (hereinafter OHA Vol IV), p. 353. 'the unnerving discovery that German machine-gun bullets were passing through the steel sides'.

[45]AWM4 23/12/14, 12th Australian Brigade War Diary, April 1917. Report on Operations in the Left Brigade (Bullecourt) Sector 4th. Australian Divisional Front. Note 6. Doesn't state what time they leave but capture the first objective at '5.50am'; Jeff Hatwell, *Brave Days – The Fourth Australian Division in the Great War*, (Melbourne: Echo Books, 2017), p. 219. 'half an hour late' from the scheduled 4.30am start and tank arrivals; Ian Polanski, *The History of the 46th Battalion in The Great War of 1914-18*, (Townsville: Puttees and Puggarees, 1999). Tank opens fire on 46 Battalion; OHA Vol IV, pp. 305-306. Fate of tanks.

[46]AWM4 23/65/15 48th Battalion War Diary, April 1917. Report Lt McKenzie, 'passed through the enemy front line entanglements with ease and entered the enemies (sic) second line trench'. pp. 16-17; Jack Sheldon, *The German Army in the Spring Offensives 1917: Arras, Aisgne and Champagne*, (Barnsley: Pen & Sword, 2015), p. 220. 'no tactical surprise'.

had only come under 'direct rifle fire' from the trenches in front of the town.[47] Two thirds of 12 Australian Brigade's ammunition allocation for the battle, some 350,000 rounds, had been packed in belts and stacked next to six guns dug into the railway embankment only 300 yards from the German trenches, which fired more or less continuously for six hours.[48] It was an attempt at fire superiority by volume over individual ungrouped German guns with a local reserve of only a few thousand rounds. It was helped by the German machine guns being locatable and therefore suppressible by the 'form of the wire' in front of both the first and second line of trenches of the Hindenburg Line where 'no concrete emplacements' had been made'.[49]

What should have been crucial tactical information, that they had been able to suppress most of the MG08 fire and capture their reverse slope objectives with relatively few casualties, became in the brigade report 'heavy enfilade machine gun fire' and 'heavy casualties were suffered on reaching the enemy's wire which was found practically uncut and exceptionally strong'.[50] A similar thing would happen again to 12 Australian Brigade at Passchendaele on 12 October 1917, where its objectives were taken with light casualties and more than 200 prisoners 'coming in freely', becoming 'casualties were heavy during this advance' at the divisional reporting level.[51] Like

[47]AWM4 23/65/15 48th Battalion War Diary, April 1917. Report on Operation 11 April 1917. p. 10. 'an advance of 1000 yards had to be made before the 1st objective under direct rifle fire from the trenches east of Bullecourt'.

[48]AWM4 23/12/14, 12th Australian Brigade War Diary, April 1917. Report on Operations in the Left Brigade (Bullecourt) Sector 4th. Australian Divisional Front.

[49]AWM2018.785.69 Maps and aerial photographs relating to James Murdoch Archer Durrant. Detailed and high quality interpretive assessment of German machine guns defences around Bullecourt based on aerial photos and topographical maps by an unnamed machine gun officer(s). Possibly acting OC 12 AMGC, and later adjutant 4 AMGB Capt Harry Crouch MC. See also C.E.W Bean, *Official History of Australia in the War of 1914-1918*, Vol. XII: *Photographic Record of the War,* 11th Edition, (Sydney: Angus & Robertson, 1938), Plate 311. Hindenburg line, East of Bullecourt, 3rd April 1917. Aerial photograph of section to be attacked by 12 Australian Brigade. Plate 312. Key to Photograph on Opposite Page. Interpreted defence of Hindenburg Line to be attacked by 12 Australian Brigade. Plate 318 (also AWM E1408) The Railway Embankment Near Bullecourt. Photograph showing ammunition boxes behind railway embankment pp. 305-306.

[50]AWM4 23/12/14, 12th Australian Brigade War Diary, April 1917. Report on Operations.

[51]AWM4 23/65/21 48th Battalion War Diary, October 1917. Report on Operations of 12-14th October, 1917, p. 2. 'casualties during the advance were light and mostly caused by machine gun fire across the ROULERS RAILWAY'; Craig Deayton, *Battle Scarred – The 47th Battalion in the First World War*, (Newport, NSW: Big Sky Publishing

Bullecourt, it too had become a machine gun shoot out by the afternoon, this time however, the Germans had also begun to group their guns together.[52]

At Bullecourt, the men themselves only had a vague idea of what was going on, but it sounded 'like thousands of bees passing overhead' and that 'the air was dense with crackling bullets'.[53] The 10th and 11th companies of the IR124 on 12 Australian Brigade's front reported heavy casualties and intense machine gun fire from the British tanks that had strafed them with '6 machine guns simultaneously while moving back and forward along the trench line'.[54]

The significance of 12 AMGC attaining several hours of fire superiority over the Württembergers was lost to all but a few in the scale of the losses in the AIF's second worst day of the war. 4 AMGC on the right had also achieved early success and later failure but with much higher casualties using different tactics.[55] Half were wiped out carrying their heavy loads with the advancing infantry, the other half captured or killed due to an inability to get ammunition forward.[56] Alone in 4 Australian Division, 12 AMGC had a philosophy of keeping their guns well back and in touch with supplies and that while the infantry were moving they should be firing, something later strongly advocated by the Fourth Army DIMGU during the 100 Days.[57]

Pty Ltd, 2011), p. 173. 'the objective was reached with fairly light casualties' and 'coming in freely'; Report on Operations Carried Out by the 4th Aus. Division. 12th. October 1917. Note 2. 'casualties were heavy'; also AOH Vol IV, p. 924. 'and in spite of very severe casualties the 12th Brigade secured the first objective'.

[52]AWM4 1/48/19 Part 1. General Staff Headquarters 4t h Australian Division. October 1917, Part 1. p. 47. Extract From Second Army Intelligence Summary No 818. 14th October 1917. 'all reports received agree that the volume and intensity of the machine gun fire encountered by our troops on the 12th were far heavier than any recent battle day'.

[53]Knowles B, Reveille, Sydney: *Journal of the Returned Service League*, 30 April 1931, 'thousands of bees'; Lt George Deane Mitchell MC DCM, *Backs to the Wall,* (Melbourne: Allen & Unwin, 2007), p. 92. 'air was dense'.

[54]Sheldon, *The German Army in the Spring Offensives 1917*. p. 223. '6 machine guns'.

[55]OHA Vol IV, p. 343. The entire compliment of 16 machine guns of the 4 AGMC went forward with the infantry while the 12 AMGC only sent two guns forward some hours after reaching the objective. Casualties 4 AMGC (104) cf. 12 AGMC (14), 4 Australian Brigade (2,339 of 3,000 - 78%) cf 12 Australian Brigade (950 of 2,300 - 41%).

[56]OHA Vol IV. p. 303.

[57]DIMGU Divisional Inspector Machine Gun Units – Col Noel K Charteris, Fourth Army.

12 AMGC had become better than 4 AMGC as an unintended consequence of the intervention of Monash during the doubling in size of the AIF after Gallipoli. As 4 Brigade commander, he bragged about keeping all of his machine gunners from Gallipoli.[58] To make good the shortfall the 12 Australian Brigade sought out educated well to do Light Horsemen and commissioned them into 12 AMGC. Apart from the introduction of many excellent well-educated soldiers, this also gave them distinctly superior animal handling skills in comparison to not just 4 AGMC, but other machine gun companies formed from infantry battalions within the wider BEF. In late September 1917, Hutchinson describes the 'gargantuan' task of hauling forward 700,000 rounds (about 27 tonnes) by hand across the muddy ground at Third Ypres. Around the same time 12 AMGC, only a few thousand yards north of them, brought their battery ammunition forward undetected by the enemy using pack animals.[59] These unexpected skills enabled the 12 AMGC to get more ammunition forward than most other units, adding considerably to their effectiveness. Furthermore, with the notable exception of 12 October 1917, the 12 AMGC had their pick of the best men from the battalions to carry for them from 1917 onwards.[60]

It was only after Arras did someone in the War Office also make the curious observation in regard to machine gun barrages:

> There was no direct evidence of the destructive effect of this fire, but on every occasion on which it was brought to bear the objective was gained. No counter-attacks developed on this front.[61]

The Canadians had also trialled overhead machine gun fire as early as 1915 but their Colt-Browning M1895 'potato digger', technically a gas operated automatic rifle, overheated quickly and fired the first shot only 200 yards making it unsuitable for the

[58]General John Monash, *War Letters of General Monash*, Edited by Tony Macdougall, (Sydney: Duffy & Snellgrove, 2002), p. 101. Letter John Monash to his wife dated 14 February 1916. 'I shall lose none of my H.Q. or signals, or battalion Cos, or their H.Q. or machine guns'.

[59]AWM4 24/17/19. War Diary 12th AGMC, September 1917. Capt D. Martin, Report on Operations at Ypres 26th to 28th Sept 1917. Note 4.

[60]AWM4 24/17/20. War Diary 12th AGMC, September 1917. Capt D. Martin, Report on Operations near ZONNEBEKE from 11th to 14th October 1917. The carriers attached to the 12 AGMC for the success at Polygon 26 September 1917 were returned to their battalions and replaced with men of 'little or no use, as no reliance could be placed on them'.

[61]Summary of Machine Gun Intelligence No 1, May 1917, Issued by General Staff, War Office. p. 6.

task.[62] Its replacement with water cooled mechanically driven Vickers in August 1916, and the adoption of overhead fire tactics, coincided with a significant turnaround in Canadian fortunes before the end of the year.[63] By the time of their success at Vimy Ridge in April 1917, they were still relatively new to large scale machine gun operations and had underestimated barrel usage, resulting in noticeably thinning fire just eight minutes before zero hour.[64]

Importantly, they had also noticed these barrage guns could respond to front line SOS calls much sooner than could artillery, and this fire caused counter attacks to fail quickly and 'how the Huns melted away before it'.[65]

Throughout 1917, the tactics were quietly adopted by other units in the BEF, though some had already trialled it independently.[66] 62 West Riding Division was introduced to the tactics by the AIF at Second Bullecourt, where the number of machine guns had been doubled after the first failure by the 4 Australian Division.[67] By Cambrai in November 1917, they would make one of the best advances made by any unit and by making extensive use of the tactic.[68]

Around this time the French also became interested in what the Canadians had done. Their Official History credits 32 Corps, whose sector of the front was much hillier than further north, as issuing its first indirect fire orders as early as 6 May 1917.[69]

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[62]Raymond Brutinel, Interview - 18 October 1962, transcribed by Dwight Mercer, private collection. p. 31.

[63]Logan and Levey, *History of the Canadian Machine Gun Corps*, p. 15 and p. 27. Issuing of Vickers guns to Canadian Expeditionary Force (CEF).

[64]AWM25 385/6 Notes on the employment of Machine Guns in the Canadian Corps during the Operations leading to the Capture of Vimy Ridge. p. 4, point no. 9.

[65]SS146 War Department, Machine Gun Notes No. 2. Col Noel K Applin, Lecture *Machine Guns at the Battle of Messines*, Delivered at US Army War College, Washington DC, 21 November 1917. p. 34.

[66]TNA WO 95/2428/2. 100th MGC War Diary. Hutchinson, a veteran of the August battles at Suvla, issued indirect fire orders in May 1916; Andrew Whitmarsh, *The development of infantry tactics in the British 12th (Eastern) Division, 1915-1918*. (University of Leeds: Dissertation for Military History MA). Note 68. 'as early as January 1916'; Cornish, *Machine Guns and the Great War*. pp. 67-68 & picture 12. 'Emergency Indirect Fire' by 48 Division July 1916.

[67]1 Bullecourt used 51 Vickers guns while at 2 Bullecourt 96 were engaged.

[68]TNA WO 95/3083/4, 212th MGC War Diary (185th Bde.), November 1917.

[69] French Official History, Tome V, Vol. 2 Précis, p. 827 (Tirs Indirects des Mitrailleuses).

A sceptical General Group Armies Central, Emile Fayolle, ordered a position that had changed hands a number of times be captured using the cover of this fire alone.[70] Success 'without casualties' saw the French set up their own machine gun schools, including one next to Camiers, to teach the tactics.[71] On the 20 August 1917 the Morocco Division used overhead covering fire in the first successful French attack at Verdun along both banks of the Meuse and within months of widespread mutinies.[72] This caused much consternation and confusion for Ludendorff who observed that the turnaround in French fortunes had not been the introduction of tanks.[73]

Also influenced by the Canadians, success at Messines correlated with more than half of the Second Army's machine gun resources being dedicated to covering fire during the advance. Brigadiers reluctantly giving them over for the machine gun schemes to be organised at Corps level.[74] Success despite the preparatory bombardment causing only one casualty per 150 shells.[75]

There are few better examples of how the use of overhead machine gun fire correlated with success while its absence correlated with failure at the NZEF attack on the village of La Bassieville several days before the commencement of Third Ypres. This assault was 'very poorly supported by the artillery' and was 'an almost purely machine gun show', but successfully captured and consolidated the objective. However, its two barrage groups of twelve guns each were inexplicably withdrawn at 4.40 a.m. and the unexpected German counterattack that followed around 6.30 a.m. resulted in a rare loss of position by the New Zealanders.[76]

The BEF had further mixed results at Pilckem Ridge on 31 July 1917 leading to a demonstration at Camiers around 20 August 1917 given to Haig, his divisional commanders and above. In a bunker on the beach, all they could hear and see was spurts of sand and a patter of heavy hail and the faint rat-a-tat-tat of eight Vickers firing from over 2,000 yards away. None were keen to go out into the 260 x 60 yards of 'absolutely concentrated hell' around them. Haig asked for the fire to be put somewhere else and, within 1 min and 5 sec of the order being given, an unsuspecting

[70]Brutinel, Interview 1962, p. 31 (Tape 20 p3).
[71]Ibid. p. 31. 'without casualties' likely an exaggeration by Brutinel.
[72]Applin, Machine Guns at the Battle of Messines, p. 36.
[73]General Erich Ludendorff, *My War Memories,* (London: Hutchinson & Co, 1919. Vol ii,p. 479.
[74]Applin, Machine Guns at the Battle of Messines, p. 31. Applin was II Anzac MGO.
[75]Captain G. C. Wynne, *If Germany Attacks: the Battle in Depth in the West*, p. 268. Calculated from 40 casualties per day in regimental sector of 6,000 shells daily.
[76]Luxford, *With the Machine Gunners in France and Palestine.* p. 79.

white flag received a torrent of bullets.[77] It was a form of Command and Control that had not yet been seen.

Around this time, the British Official Historian also noted, 'machine gun barrages fired over the heads of the advancing infantry had now become universal in offensive operations'.[78] The history of 33 MGB noted 'the Third battle of Ypres had already begun, and so obsessed now was the higher command by the Machine Gun Barrage, that the Machine Gun Companies of every available division were crowded into line to support the offensive'.[79]

In late September and early October 1917, the AIF participated in a series of successful advances within machine gun range (under 2,000 yards) at the Menin Road, Polygon Wood and Broodseinde.[80] On the 4 Australian Division front at Polygon Wood, a significant number of officers of RIR229 were shot dead above the waist from machine gun fire, causing the unit to retire.[81]

Haig then ordered further advances, this time beyond machine gun range, at Poelcapelle and First Passchendaele on 9 and 12 October. On the 12 October, whilst initially successful in the atrocious conditions, many machine gun crews were wiped out in the open attempting to move with their heavy loads in the mud to support the attack on the second and third objectives. This left them with no effective SOS MG scheme, most glaringly on Monash's 3 Australian Division front, through which the Germans mounted a successful counterattack.[82] Ultimately both attacks were forced back to almost where they started, the NZEF suffering its worst day of the war. Both

[77]Applin, Machine Guns at the Battle of Messines. p. 61. Description of machine gun barrage demonstration.
[78]Cornish, *Machine Guns in the Great War.* p. 98. 'universal'.
[79]Crutchley, *Machine-Gunner 1914-1918,* p. 107. 'obsessed'.
[80]The range of Mark VII ammunition was 2,800 yards; however, the batteries were generally several hundred yards behind the front line. Advances beyond 2,000 yards required the batteries to move.
[81]Jack Sheldon, *The German Army at Passchendaele*, (Barnsley: Pen & Sword, 2007). p. 169. Included the local KTK and the 3 MGC commanders.
[82]AWM4 24/14/12. 9th AGMC War Diary. October 1917. Lost 7 guns: AWM4 24/15/13. 10th AGMC War Diary, October 1917. Lost 3 guns; AWM 24/16/1. 11th AGMC War Diary, October 1917. Lost 3 guns; AWM4 24/17/20 12th AGMC War Diary, October 1917. The 4 Australian Division on the right of 3 Australian Division had a shorter and narrower front and left their barrage group in place. Only two forward guns of the 12 AGMC were lost; Luxford, *With the Machine Gunners.* pp. 94-95. Forward MG groups remained at second objective position trained on SOS fire, while the barrage group did not move as ordered.

3 Australian Division and 12 Australian Brigade also suffered heavy casualties from being flanked and forced to withdraw.[83]

In early September 1917 the 3rd MGK of the IR19 began experimenting with firing into the back areas and supply lines of the British lines north of them at 2,000m range. This, they also found, brought 'considerable success'.[84] On 9 October, the German 16th Division used its attached *Maschinengewehr-Scharfschützen Abteilung* to fire an overhead SOS barrage against attacking troops of XVIII Corps.[85] By November 1917, one man from each company was being sent to Spandau for a course including instruction in barrage and indirect fire.[86]

Throughout 1917, the German Army had invested heavily in the weapon. In January 1917, they had some 16,000 MG08s across two fronts. By January 1918 this had grown to 32,000 MG08s and 37,000 MG08/15s, the vast majority concentrated or on their way to the Western Front.[87]

The Battle of Hamel

By mid 1918, 4 AMGB was as well placed as anybody to give covering fire to 'the most important minor operation carried out on the Fourth Army front between 25 April and 7 August'.[88] On 25 June 1918, Harry Murray was summoned to Monash's HQ and asked to devise a plan of machine-gun support for an attack at Hamel, aimed at capturing the village and the ridge above it.

Murray returned to his unit and immediately called-in and briefed his officers, who worked overnight reviewing maps and photographs of the battle area to work out a rough plan of attack, which was approved by Monash the next morning. Murray and his second in command immediately set out to reconnoitre the proposed positions. Returning before sunset, and having made up his mind, he sent 100 men of the 'B' crews forward after dark to commence digging positions they had practiced while blindfolded and covering over their work and tracks before dawn.[89] Importantly, he

[83]OHA Vol IV. p. 928. 3 Australian Division – 3,199 casualties. 12 Australian Brigade – 1,018 casualties.
[84]Sheldon, *The German Army at Passchendaele.* p. 150.
[85]Cornish, *Machine Guns in the Great War.* p. 103.
[86]SS201 Tactical Summary of Machine Gun Operations for October, 1917, Issued by the General Staff, War Office. Point 2.(a)(ii.).
[87]Logan and Levey, *The History of the Canadian Machine Gun Corps*, p. 11.
[88]Narrative of MG Ops IV Army, Pt 1. p. 6.
[89]AWM4 24/4/3. War Diary 4th AMGB, July 1918. Parts 1 & 2.

placed them away from known MG positions in seemingly unimportant non-descript parts of the front.[90]

The work on the seven-foot deep slit trenches was completed the next night, two for each gun. In the primary firing position, a stabilising T-piece was placed along with water and gun oil, while in the support positions 8,000 rounds of 0.303 bullets, loose in crates . The latter pits would be occupied by the reserve crews who refilled belts as needed and who also replaced any casualties in the primary crews. Both types of positions were manned by four men in each pit.[91]

Camouflage was of critical importance, as all of these positions were in the open, and were subject to both direct enemy observation from the Quarry and Wolfsberg, as well as aerial photography, which they assumed was scrutinised by the Germans as carefully as they themselves did with their own photographs.

Murray wanted to ensure that, once dug in and camouflaged, that no tell-tale traffic signs could be seen from the air, so sentries were posted to ensure no-one was permitted near these positions during the period 27 June and 3 July 1918. Not a single footprint would be trod in the area, giving the Germans no reason to suspect anything. Slit trenches dug at night, while under full view of the enemy during the day, had been trialled by 12 Division at Arras in April 1917, but this was first done on a large scale shortly after in June at Messines.[92] Whilst at Messines 'not a shell had landed on them all day', the 18 Pounder gun batteries, who had first choice of the cover behind Hill 63, received the bulk of German artillery response and took significantly more casualties.[93] Safety of the men, and therefore continuity of fire, had been achieved by hiding in plain sight, which gave better protection than steel or concrete ever could.

Further back the battalion's signals officer began the task of connecting these gun positions to the telephone system, using as many inter-connecting wiring patterns as he could devise. Positions were also chosen for visual signalling stations using Lucas lamps, a weather permitting back-up to telephone communications during the battle. Should the worst happen, and the telephone wires be cut, the gun crews in the batteries could still be in touch and their fire could be called upon within about 30 seconds. Communications were of critical importance to 4 AMGB and the unit ran its own signalling school from not long after its inception.[94]

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[90]Narrative of MG Ops IV Army, Pt 1. p. 7.
[91]AWM4 24/4/3. War Diary 4th AMGB, July 1918. Parts 1 & 2.
[92]Applin, Machine Guns at the Battle of Messines. p. 41.
[93]George Mitchell, *Backs to the Wall*, Angus & Robertson, 1937. p. 144. ' not a shell'.
[94]AWM4 24/4/2, 4th AMGB War Diary, June 1918. The four companies had two men from each continuously attending a rolling four week course.

Once completed the men spent their days resting for the exertion ahead, while some of the officers began the thousands of calculations needed to produce the simplified charts to be followed by the machine gun crews. These charts ensured their fire landed when and where it was wanted, whether the machine gunners could see the target or not and making it almost impossible for the Germans to suppress.

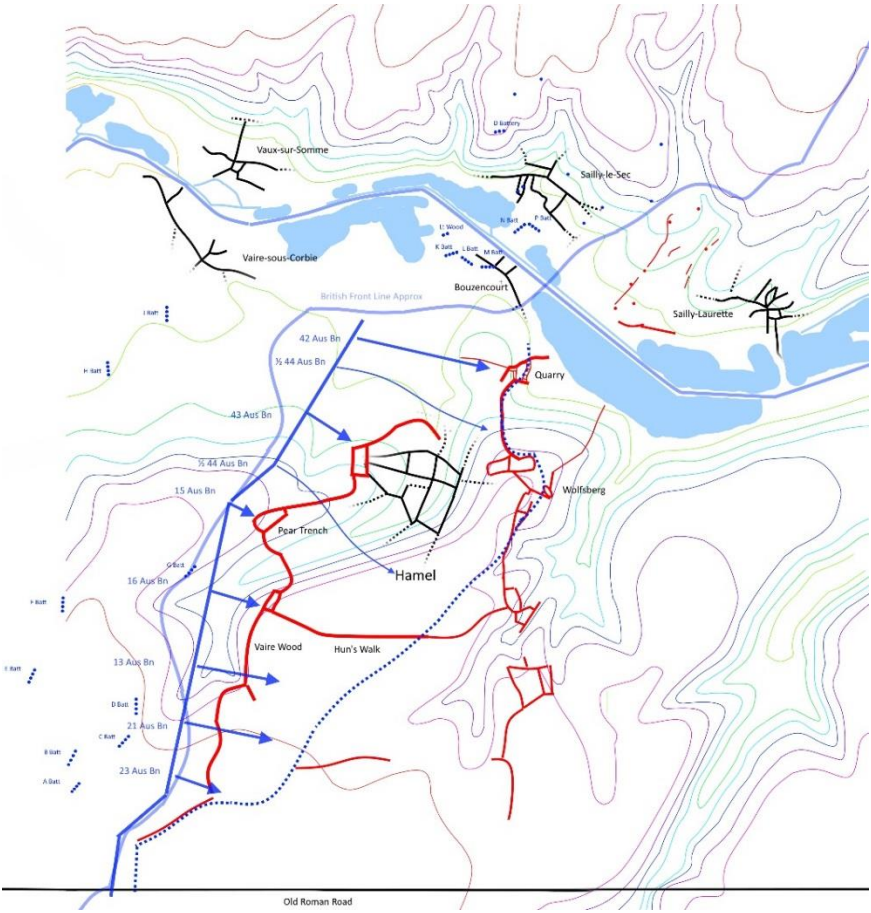

Figure 1: Topographical map of the northern part of the Hamel attack showing the proposed advance of the 11 Brigade and approximate positions of the machine gun batteries supporting the attack. Colours are 10m contours.

In the early hours before the attack, the gun positions were uncovered and occupied by the crews, who brought with them an additional 4,000 rounds loaded in belts, giving them 12,000 rounds each in total.

An inability to suppress German rifle and machine-gun fire from the Quarry and the Wolfsberg during the attack would be disastrous. These were deep strongholds with large stores of MG08s and MG08/15s (~25-30 in total) and large local reserves of ammunition (50-100k rounds). Without effective covering fire, the Australian infantry would be at risk of the Germans firing through the 18-pounder creeping barrage, a tactic in use since Arras, but they rarely had this opportunity against the Australians, and a study of Hamel shows why.[95]

Under the cover of the noise of 628 guns of the Royal Artillery, the Wolfsberg, Quarry and 'M' targets were put under steady machine gun fire from zero+3 minutes onwards.[96]

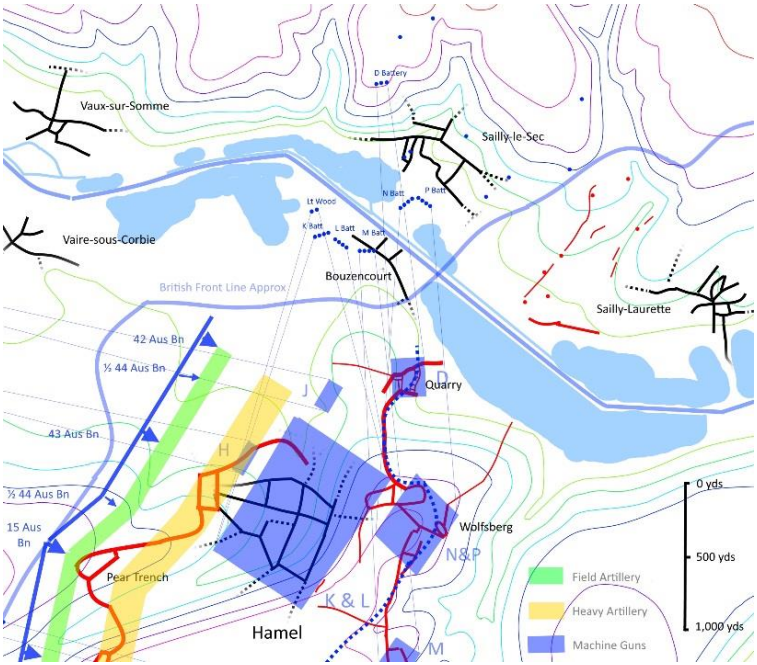

Figure 2: Covering fire for the 11 Brigade attack at Hamel z+5 minutes.

[95] Applin, Machine Guns at the Battle of Messines. p. 33.
[96] Narrative of MG Ops IV Army, Pt 1. p. 7.

Each battery worked as a single weapon. A battery could put concentrated fire on trenches and strong points or put much larger areas under desultory fire into which the enemy were reluctant to move. Interestingly, the fire on the Wolfsberg from "N" and "P" batteries was not particularly intense, only 200 bullets landing every minute on a 500 x 500 yard target. However, this was largely into an open trench system which restricted movement and caused the occupants casualties, even from ricochets.[97] Moreover, they landed in bursts of sporadic fire, leaving the defenders uncertain as to when this unreturnable fire might commence again. Importantly also, this rate could also be easily increased to 1,000 bullets per minute with a phone call.

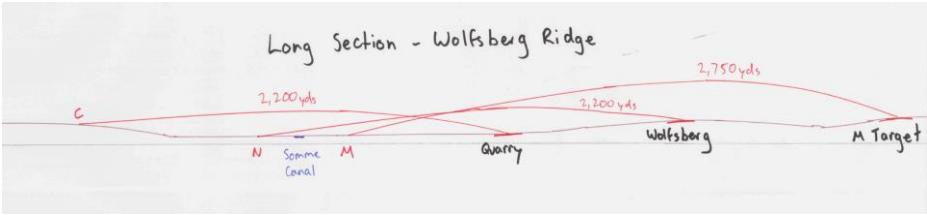

Figure 3: Long section view of MG fire North to South along Wolfsberg Ridge

As the creeping artillery barrage approached the standing MG barrages, their fire was switched to SOS lines.

[97]AWM4 24/3/5, 3rd AMGB War Diary, Jul 1918. p. 15. Statement of prisoner - ricochets.

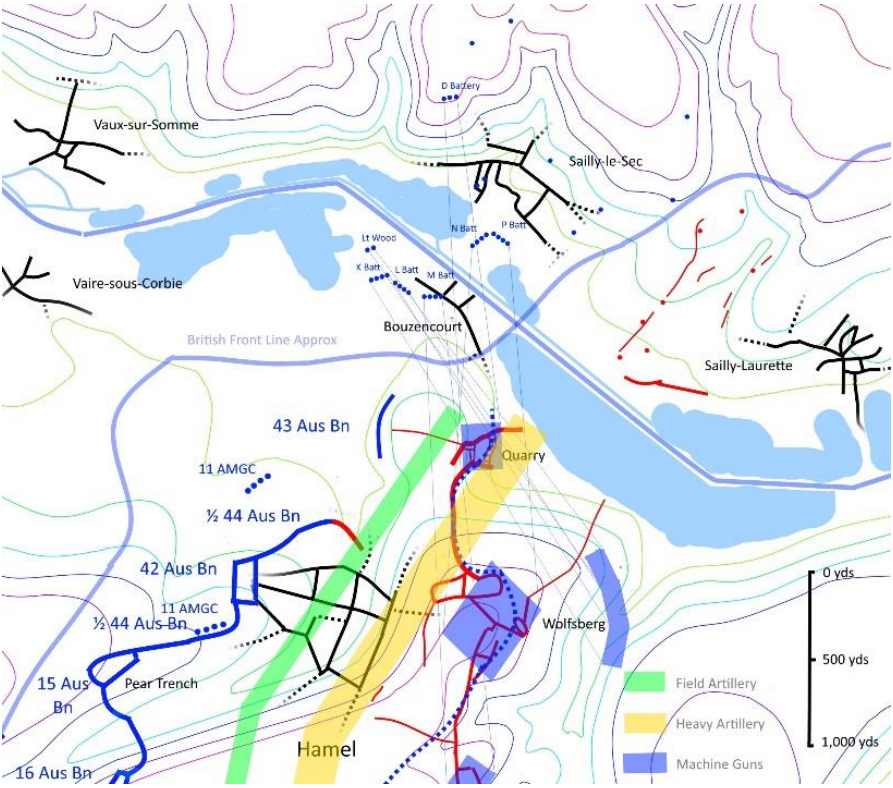

Figure 4: Covering fire for the 11Brigade attack at Hamel z+5 minutes.

The artillery barrage was halted midway for a period of ten minutes, during which a lot of things happened quickly. They established a forward headquarters in the newly won German trenches in front of the town, then began laying telephone lines, visual stations and a wireless setup back to the main interconnected telephone system that ran mostly deep alongside the Somme Canal. This gave them three reliable and near instantaneous communication links with the machine guns in the north and to the two batteries of four machine guns each of 11 AMGC that had also been quickly established on either side of the town. With 8,000 rounds apiece, these guns would put in covering fire on the Wolfsberg over the heads of 44 Battalion and the tanks in front of them as they advanced up the slope.

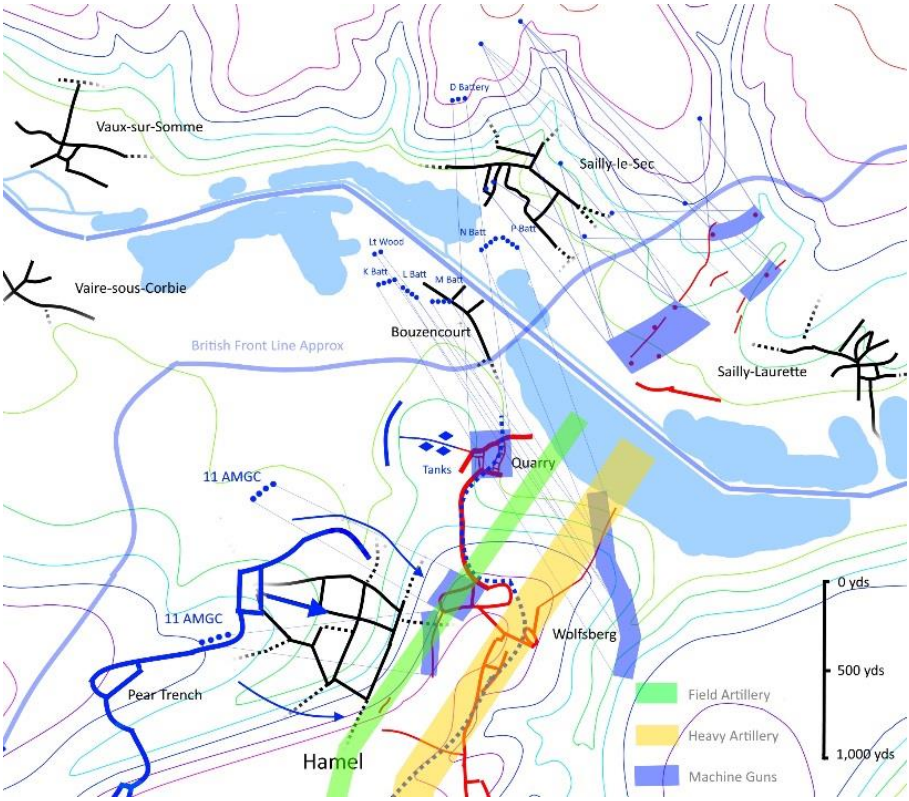

Figure 5: Covering fire for the 11 Brigade attack at Hamel z+60 minutes, including 12 AGMC suppressing fire North of Somme.

This part of the plan was similar to how the 3rd Jäger Battalion had captured some of Murray's guns without firing a shot at Dernancourt and the Wolfsberg was likely captured in much the same way.

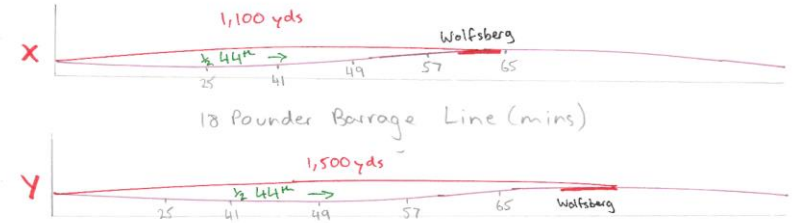

Figure 5: Long section views of 44 Battalion's advance under direct covering fire.

The Germans in the Quarry had also been pinned down from not long after zero hour by three guns of 12 AMGC high on the northern bank of the Somme. 42 Battalion's (3 Australian Division) officers leading the attack were in contact with their commander located near this battery and overlooking the battlefield. When at least one German machine gun opened fire, within 30 secs it almost certainly received machine gun fire from C Battery high on the northern bank of the Somme.[98]

Figure 6: Battery 'C' (12 AMGC) view from the Northern bank of the Somme River.

[98]Whilst the diaries don't explicitly state so, it seems unlikely such effort would have gone into connecting batteries by phone and then not use them.

While the infantry took cover, tanks were sent forward to the Quarry because they could operate safely in the presence of their own machine gun fire, however non-existent suspension made the tanks' machine guns inaccurate while moving and they had a very limited field of view, even when stopped. They could, however, run over the tops of these strong points, spinning around to finish the job, the only action observable by the infantry. 42 Battalion had only three men killed in the capture of the Quarry and at least one of them had been from friendly artillery fire.[99]

A deeper look into the capture of the Quarry reveals how much fire suppression was needed. On Gallipoli Murray himself had defended the crucial position at the Nek from 600 yards away and knew that defending fire need not come from the objective. According to the 12 AGMC diary, only five guns were used in direct support at Hamel, the rest were used for 'harassing fire' towards Sailly Laurette on the northern side of the Somme. This was done in conjunction with a feint by 14 Australian Brigade to occupy the front trenches 2,000 yards further north to give the impression of a much larger attack. This bland description gives the reader no great insight of how effectively they had been able to suppress MG08 fire during the capture of the Quarry.

They had identified six MG08s north of the Somme that could potentially fire on the Quarry from across the valley. No machine gun fire from that direction was reported during Hamel and all six were captured four days later in 12 Australian Brigade's 'peaceful penetration' of Sailly Laurette.[100]

After Hamel

In the weeks following the success at Hamel, 4 AMGB began to practice for 'open warfare'.[101] This practice showed its benefits soon after at Amiens, where they advanced with their entire left flank in the air across the Somme River. The superior tactics of the Australians would not only suppress most MG08's and MG08/15's, but also 22 artillery pieces overlooking and enfilading the entire Fourth Army advance high on the Chippilly Spur.[102] Something Murray satisfyingly described as 'enemy machine gun fire being completely neutralised' and that the notable achievement of 'complete

[99]Red Cross Missing Report, Lt Frederick Halord (sic) Sessarago. AWM 1DRL/0428.
[100]For much of Hamel and peaceful penetration MG plan see AWM4 24/4/3 PARTS 1 & 2 4th AMGB War Diary, July 1918; AWM4 24/17/29 12th AMGC War Diary, July 1918.
[101]AWM4 24/4/3 4th AMGB War Diary, entry 14 July 1918.
[102]Narrative of MG Ops IV Army, Pt 1. pp. 12-13; also Hutchinson, *Machine Guns*. p. 324. 'the 4th Australian Machine Gun Battalion, advancing in depth, formed a defensive flank covering 3000 yards and successfully kept down the fire of 22 field guns, severely harassing the attack, until our own artillery came into action and destroyed the hostile guns'.

superiority of fire' had been gained.[103] The Canadians south of them also described overcoming more than 7,000 yards of 'co-ordinated M.G. Defences permanently garrisoned' where 'the defensive battle became a fight for land marks in which Machine Guns only were engaged practically to the exclusion of other arms'.[104] Both had used direct overhead covering fire, largely in pairs and in ranges below 1,000 yards, to suppress MG08 and MG08/15 fire while the infantry advanced.

At Le Verguier, on 18 Sep 1918, the 4 Australian Division advanced 6,000 yards with its right flank mostly in the air. They achieved this despite being outnumbered and outgunned and their detailed MG plans being captured with the 5 AMGB commander while out checking overhead clearances for his batteries the night before.[105]

However, by this stage of the war the Germans had no answer to the AIF's machine gun arrangements and this is probably why Montgomery chose this particular battle for his example. The barrage of bullets on the final objective had 'amazed' a machine gunner of the German IR58 and a battalion commander captured earlier in the day stated 'the small arms fire was absolutely too terrible for words. There was nothing to be done but to crouch down in our trenches and wait for you to come and take us'.[106] Monash also pointed out, 'there is no record in this war of any previous success on such a scale, won with so little loss'.[107]

Furthermore, the Fourth Army did not believe the 'three phases could be concluded in one day', and yet the final objective was captured at 11pm without supporting artillery, after what the Fourth Army DIMGU, Lt. Col. NVK Charteris, described as 'a good example of a quickly organised barrage with successful results'. [108]

Charteris also described 20 guns of 4 AMGB having gained 'complete fire superiority' over the enemy on this 3,000 yard exposed flank and tried to draw attention to the

[103]AWM4 24/4/4 Part 2, p. 55. Notes 6 and 9. Lt Col Harry Murray. Unlabelled report on operations at Amiens.
[104]TNA WO-95-1073-6_1. Notes on Recent Operations Canadian Machine Gun Corps, pp. 81-84. Original emphasis.
[105]OFA Vol VI, p. 897.
[106]AWM25 923/28, Extracts from Reports, Fourth Army No. MG 23/59. 'amazed' and 'too terrible'.
[107]Monash, *The Australian Victories in France in 1918,* p. 219.
[108]John F O'Ryan, The Story of the 27th Division, Wynkoop Hallenbeck, (New York: Crawford, 1921), Ch. 15 p. 249; AWM25 923/28, Extracts from Reports, Fourth Army No. MG 23/59.

'excellent results' of them being able to protect, without hindering, the advance of the troops.[109]

Murray was extremely secretive about his men's successes. When rung in April 1918 and told Sergeant Cedric Popkin (24 AMGC), had probably shot dead the Red Baron, he responded, 'Good, tell him to shoot some more, that's what he's there for' and hung up, never referring to the matter again.[110] Murray's men, unusually in the AIF, practiced saluting for 15 minutes each day, mostly to keep staff officers away. While he did not like attention being drawn towards himself or his men, he was equally comfortable with his subordinates addressing him as 'Harry', though no one called him 'Mad Harry' to his face.[111]

These men shared little of what they did with anyone both during and after the war. It was, it must be said, an unpleasant business. At Hamel, hundreds of AIF servicemen queued up to view what appeared to be a 10-year-old boy dead from multiple machine gun bullet wounds in the stomach. Many, like the author's grandfather, would be haunted long after the war by what they had done.

When Murray was forced into a 'Victory Tour' with Monash and William Birdwood, he walked out without addressing the crowds that had largely come to see him, ending up in a remote Queensland station.[112] Machine gunners on both sides had killed in numbers not seen before in human history and this cast a long, silent shadow over many of their lives. Furthermore, Murray blamed the early failure and the unnecessary loss of good men at the Bloody Angle on the other two, writing 'our leaders still had something to learn' in this 'ghastly failure'.[113] At Bullecourt, Murray had begged for artillery support for hours which Birdwood had refused out of concern for hitting his own troops, then when finally authorised, did just that.[114] Murray would be forced to leave behind his wounded in another 'ghastly blunder', a humiliating experience for any

[109]AWM25 923/28 Lt Col NK Charteris, Examples of Successful Uses of Machine Guns. Notes A(10) & (11).
[110]AWM 3DRL606/270 part 3/1, pp. 16-17. Account of Maj Fred Hinton, OC 24 AGMC and commander of Popkin.
[111]AWM S01173 Reginald Colmer interviewed by David Chalk about his service with the 4th Brigade in the First World War. Colmer had served under Murray in the 13th Battalion. 'I always called him Harry'.
[112]Jeff Hatwell, *No Ordinary Determination – Percy Black and Harry Murray of the First AIF*, (Fremantle, Western Australia: Fremantle Arts Centre Press, 2005), p. 230
[113]Franki & Slatyer, *Mad Harry,* p. 247.
[114]Walker, *The Blood Tub – General Gough and the Battle of Bullecourt*, p. 101; OFA Vol IV, p. 340.

front line officer, let alone someone like Murray.[115] He did at least admire Birdwood for his frequent visits to the front line at Gallipoli.[116]

Monash, for his part, would give much credit to German machine gunners but barely mention the men who had demonstrated technical and tactical superiority over their more lauded opponents. In Monash's many after war writings he rarely, if ever, mentions Murray by name, despite their long history together and relative fame. Monash biographers mention Murray only in passing, some not at all. It suited both men because one wanted everyone to remember while the other wanted to forget and, it would seem, they were not fond of each other. Rose, at least, did not like that Monash never came near the front line, something he believed to be a crucial failing in the first few days of confusion at Anzac when it became clear their maps were inadequate.[117]

But the lack of recognition of the importance of covering machine gun fire went much further than petty personal dislikes. The conclusions drawn in the instructional pamphlet SS218 about Hamel, the only instructional pamphlet issued by the War Office about a single battle, makes no particular point about machine guns other than their co-operation with other arms in the 'success of the attack'.[118] Yet clearly, no other arm was as effective at suppressing more than 80% of fire from the strong points deep in the battle zone.

The Germans at Hamel also emphasised the importance of the role tanks had played in this unexpected loss, for which the division considered 'no occasion for any enquiry to be held'.[119] They list numerous other causes, none of which address the small arm's fire superiority the AIF and others could now exert over them.

Moreover, Monash's own description of his ordering of a creeping machine gun barrage 'advancing 300 yards ahead of the infantry' on 18 September 1918 was simply wrong.[120] Both 1 and 4 Australian Divisions had long preferred standing barrages on

[115]Franki & Slatyer, *Mad Harry,* p. 217.
[116]Ibid. p. 248.
[117]Rose, Diary, entry 4 June 1915. '…I noticed an absence of this by the C.O. and B.M. of the 4th A. Bde. In fact it is common talk that the only time they were seen to do a personal reconnaissance was on the day of the armistice'.
[118]*SS218 - Operations by the Australian Corps Against Hamel, Bois de Hamel, and Bois De Vaire, 4th July 1918*, p. 10.
[119]AWM47 111.05/1, Records of JJ Herbertson, p 194. 'no occasion'.
[120]Monash, *The Australian Victories in France in 1918,* p. 219; TNA WO 158/332, Narrative of Machine Gun Operations IV Army April to November 1918 Part 1, p. 38.

expected points of resistance, largely identified from aerial photography and reconnaissance from soldiers like Lt Bernard O'Reilly, who appears to have been responsible for the sector north of the Somme at Hamel.[121] They had tried creeping machine gun barrages sandwiched between the heavy artillery and the 18 pounder field guns at Third Ypres in 1917 and found this took away the uncertainty as to when it would start and when it would finish, which was the key feature of the tactic.[122] It is not clear whether the secretive Murray had even informed Monash of exactly what he was doing, indeed Charteris thought these standing barrages 'farther ahead of the 18-pdr. barrage than usual' to be 'the special idea of the 4th Australian Machine Gun Battalion'.[123] And yet an update to pamphlet SS106, Notes on the Tactical Employment of Machine Guns and Lewis Guns, in August 1917 specifically required attacks to consider using machine guns in set piece offensives,

> To provide during the advance an intense searching fire on the areas from which long range rifle and machine gun fire can be brought to bear on our infantry. The importance of this searching fire cannot be too strongly emphasised. The area to be searched will usually be from 1200 to 1800 yards behind the enemy foremost position.[124]

This was widely ignored during Third Ypres, where creeping machine gun barrages were generally used.

Whilst Monash stated with confidence things he appeared not to understand, others were outright contemptuous. The respected and highly influential Canadian artillery officer General Andrew McNaughton, who became Deputy Chief of the Canadian General Staff in 1922 and later Chief of the Canadian General Staff in 1929, believed them to have been wasting time and ammunition, even misusing the weapon:

States 'first phase fell 1,200 yards in front of the infantry' while 'that of the second phase 800 yards further forward'.

[121]AWM4 24/17/29 War Diary 12th AMGC, July 1918.

[122]AWM4 24/17/19, 12th AGMC War Diary, September 1917. Capt DSA Martin, Lessons Learnt From Recent Operations. Note 5. p. 16. 'it is considered some of the creeping barrage could be abolished'; Also, Applin, *Machine Guns at the Battle of Messines,* p. 33. Canadian MGO suggest to Applin before Messines 'he told me he did not bother much about creeping barrage'.

[123]AWM25 947/77. Lt Col NK Charteris, A Few Notes on the Actions of the Machine Guns of the Australian Corps on 18/9/18. Notes A(5) and I.

[124]AWM25 381/15. A. Solly-Flood. Notes on the Employment of Machine Guns, 28 August 1917. Late amendment to SS106.

> There is no evidence to show the machine-gun barrage was very effective. We must not distort history to carry forward the wrong conclusions as to the proper use of this important weapon. Significantly, such barrages were not used in the Second World War.[125]

Given McNaughton's own role in downplaying its importance between the wars its restricted use was not proof of its ineffectiveness. Whilst it was true the tactic was not widely used during the Second World War, mobile armour and the resulting more fluid front lines had by then diminished its effectiveness, its use was not unknown.

Figure 7: Vickers machine-guns of 2nd Middlesex Regiment, 3rd Division, fire in support of troops crossing the Maas-Schelde Canal at Lille-St. Hubert (St Huilbrechts), 20 September 1944[126]

[125]John Swettenham, *McNaughton: Volume 1, 1887-1939*, (Toronto: The Ryerson Press, 1968), 153n1.
[126]Imperial War Museum Photograph B 10144, Collection no. 4700-29.

Yet in November 1917 II Anzac Corps Machine Gun Officer, Lt. Col. RVK Applin, claimed in front of the U.S. Army War College that:

> The fact that after the Battle of Messines everyone was absolutely convinced throughout the British Army of the importance, the vital importance, of this barrage fire – so much so that Sir Douglas Haig himself, the Commander in Chief. Asked Colonel C___, who is with you today to arrange a demonstration for himself; and he ordered all his Army commanders, all his Corps commanders, and as many divisional generals as possible, to be present at the demonstration.[127]

Conclusions

It is not clear why the tactical handling of the most iconic weapon of the First World War has been omitted from historical analysis. The small arms fire superiority exerted over the German Army in many of the 100 Days battles seems to not warrant special mention from any of the senior commanders who wrote extensively after the war, nor from any official historian much beyond the footnotes.

And yet the idea of using automatic weapons to cover an advance of the infantry, something any modern day platoon commander would consider self-evident, did not generally exist as a military tactic in 1914 beyond Germans firing from elevated but suicidally exposed trees and platforms. We can perhaps also understand why these experimental tactics, which arose largely beyond the knowledge of, and at times against the orders of senior commanders, might not have been given the same historical credit as many of the top down tactical innovations that dominate the modern day narrative.

Australian military history books generally overlook the battle of 18 September 1918 and, if it is mentioned, will invariably refer to Monash's use of dummy tanks.[128] Indeed one Monash biographer going so far as to suggest that this and other 'tricks' had 'caused the quick capitulation of the enemy', making no mention that 'enemy machine guns were found in the trenches with their barrel casings pierced and their crews killed by machine gun fire' on the second objective.[129] That was something possibly even done by Lt O'Reilly and his three gun crew in support of the 45 Aus Bn's attack on Ascension Farm.

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[127]Applin, *Machine Guns at the Battle of Messines*, p. 34.

[128]Peter Pederson, *The Anzacs – Gallipoli to the Western Front,* (Sydney: Penguin Books, 2010). p. 438.

[129]Roland Perry, *Monash – The Outsider Who Won a War*, (Sydney: Random House Australia, 2004), p. x. 'quick capitulation'; Narrative of MG Ops IV Army, Pt 1. p. 41. 'barrel casings'.

Yet Monash had laid out the framework that allowed Lt O'Reilly 'independence of action' on that day from as early as June 1918.[130] Machine gunners in the Australian Corps were given 'tasks' rather than 'orders' in an early form of what today we would describe as 'mission command'.

The evidence presented here suggests that overhead supporting fire of machine guns in attack facilitated the 'bite' while the rapid response SOS arrangements demonstrably improved the 'hold' in set piece attacks by the BEF from mid 1917 onwards.

Evidence to prove or indeed disprove the hypothesis that these tactics were causal in the overcoming of the German Army in the field in 1918, lies in three main areas that might be researched.

Firstly, a comparative analysis of MGC war diaries across the BEF could be made to determine how well the use of these two tactics correlates with success and, perhaps more importantly, whether their absence correlates with failure. In particular during 1917, when these tactics become more common across the BEF. This data might then be compared to similar analysis of the changing tactics of the other arms of artillery, infantry and tanks.

Secondly, more detailed and thorough analysis of key battles can be made to include machine gun tactics and uses. In particular, the German unit archives might reveal detailed maps of the layout of their machine gun defences, onto which artillery and machine gun barrages can be placed in time and space to determine which weapon is suppressing the fire of any individual gun.

Thirdly, on notification of impending operations at Amiens, Harry Murray dispatched the author's grandfather, his batman and most trusted Sergeant, along with a similar group from 13 AGMC, to the small arms school at Camiers on 3 August 1918. Presumably they were sent to teach the school the successful tactics from Hamel, probably at the request of Charteris, who had been impressed with the plan at Hamel.[131] The records of the Small Arms School might indicate what was being taught there in August 1918. This analysis might reveal why, after the initial success on 8 August 1918, the German machine guns quickly regained their ascendancy. This pattern tended to repeat during the 100 Days and it seems likely being due to the forced relocation of their guns to new positions with no long term occupation evidence from aerial photography to reveal its location.

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[130]AWM 3DRL2316 Personal Files Sir John Monash 4 June to 24 June 1918.

[131]Sgt (later Lt) JF Coyle MM and Bar C de G and Lt T Douglas (13 AGMC); Narrative of MG Ops IV Army, Pt 1. p. 6.

To suppress the abundance of handheld weapons of the Germans in 1918, two things were needed. Firstly, an identification process for these difficult to detect weapons, and secondly the suppressive tactics that made it possible to attack without being torn to pieces as all sides had been in 1914, 1915, 1916 and much of 1917.

The noted German tactician Willhelm Balck agreed with nineteenth-century naval historian Alfred Mahan in that weapons technology can change overnight, while tactical doctrine, by its very nature, cannot, adding that his experience of the war was that 'bullets quickly write new tactics'.[132] At the very least, the reassessment of machine gun tactics during the First World War makes an interesting study of why it took four years for the BEF to adopt bottom up innovation, even if these tactics were not fundamentally causal to the later success.

[132]Wilhelm Balck, *Devlopment of Tactics – World War. Translated by Harry Bell,* (Fort Leavenworth, Kansas – General Service Schools Press, 1922), pp. 7-8, Mahan quote. p. 18 'new tactics'.

The actions of the tanks at the Battle of Bullecourt, 11 April 1917

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ABSTRACT
The First Battle of Bullecourt, 11 April 1917, is principally remembered for an action in which tanks played a prominent part during the initial stages of the assault. The action of the tanks, their movements and final resting place on the battlefield has often been neglected as accurate sources are limited. This has led to conjecture and confusion as to their accomplishments during the battle. By using Bullecourt as an early exemplar of their use as a primary weapon, a better understanding of their ability on the battlefield can be achieved. Overall, Bullecourt identified the limitations of tanks, and the need to develop and refine tank doctrine for future assaults.

Introduction
On 11 April 1917, tanks attacked a re-entrant in the Hindenburg Line at Bullecourt. In an untried tactic, the tanks led the advance replacing the usual creeping barrage protecting the infantry. The tank assault ended in complete disaster. The majority of the tanks were destroyed or abandoned, leaving the infantry exposed as they attempted to breach the wire in front of the German trenches. The Australian infantry had 900 men killed and some 1200 taken prisoner. The factors contributing to the catastrophe are controversial.

The invention of the tank during the First World War was a technological innovation designed to break the stalemate on the Western Front by destroying wire

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entanglements and enemy machine gun emplacements.[1] The tank would go on to transform how warfare was conducted in the twentieth century, and prevented enduring entrenchment in the Second World War.[2] The primitive, poorly armoured British Mark I tank was first employed on the battlefield at Flers–Courcelette on 15 September 1916. The attack achieved limited results, but nevertheless General Headquarters (GHQ) agreed to pursue their worthiness through saving lives and with some machines penetrating German lines further than could the infantry.[3] The next major opportunity to use tanks was at the Battle of Arras, a diversion for General Robert Nivelle's proposed 1917 Spring Offensive. General Sir Hubert Gough of the Fifth Army, whose command flanked the Arras sector of General Allenby's Third Army, wanted a subsidiary converging assault against the Hindenburg Line to the east. Gough elected to attack the strongly held small salient of the village at Bullecourt (Figure 1). The objective of achieving a breakthrough spearheaded by tanks failed.

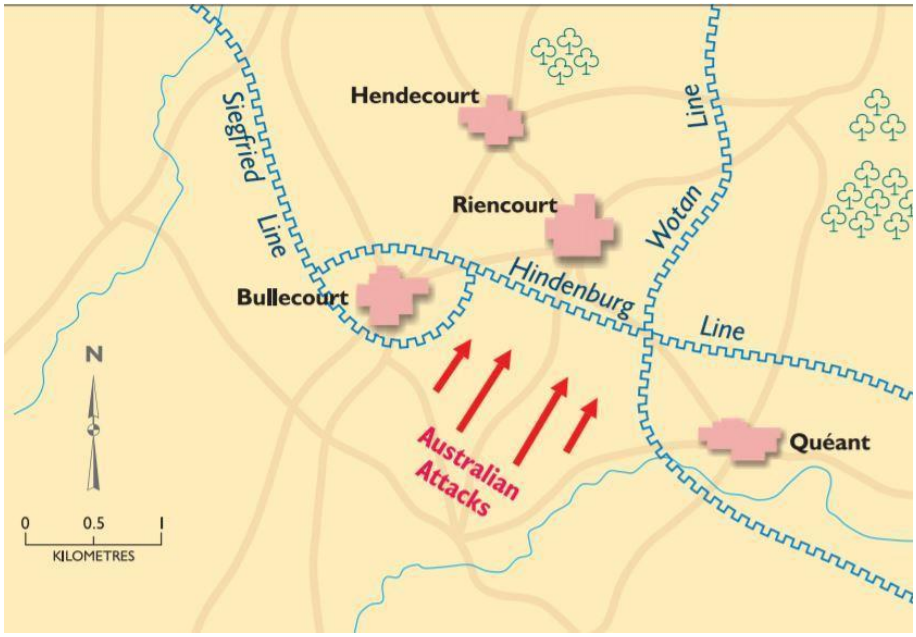

Figure 1: Proposed advance of Australian infantry attack against the German defences at Bullecourt.[4]

[1]J.P. Harris, 'The Rise of Armour', In P. Griffith (ed.) *British fighting methods in the Great War,* (Portland OR: F. Cass, 1996), p. 116 & p. 177.
[2]Ibid., p. 113.
[3]Ibid., pp. 121-122.
[4]Peter Burness, 'The battles for Bullecourt', *Wartime* Issue 18 (2002), p. 28.

Recriminations between the British and Australians began immediately. Battle reports made by Australian commanders branded the tank crews as cowards. The British tank war diary credited their accomplishments with a summary operations diagram (Appendix A) and route map (Appendix B) which overstated the depth penetrating German defences. However, no after action reports (Tank battle history sheets) have been found to exist, despite their completion being a requirement for tank commanders at that time. This left a distinct deficiency in accounts of the individual tank actions in the battle. The tank company commander, Major William Watson, published his wartime memoirs, *A Company of Tanks*, in 1920 and this provides an insight to the attack.[5] This allowed scholars some interpretation of the tank commanders who were not identified in the war diaries and the corresponding tank of which they were in charge, but unexplainably Watson omitted several officers. The Australian official historian, Charles Bean, published the 1917 volume in 1933.[6] His narrative, which produced maps of the initial and final tank positions, attempted to account for the tanks' movements on the battlefield. Bean's analysis was more reliable, but minor inaccuracies and contradictions existed compared to Watson's version. Publications on the battle itself offer attempts at describing events. Walker injects novel accounts, some of which are problematic, whilst Keech's battleground guide focuses strongly on Watson and Bean's accounts without evaluation.[7]

Treatises in tank combat performance at Bullecourt receive little attention or are generally overlooked, whereas the tanks earlier baptism of fire at Flers–Courcelette and later 'victory' at Cambrai in November 1917 are celebrated, without much insight into the intervening evolution of operating doctrine. Harris argues that the small number of available tanks for Arras meant they made little contribution to operational planning but notes the tank performance at Bullecourt was embarrassing for the Heavy Branch.[8] Evaluation of the national viewpoints of causation between British tanks and Australian infantry being responsible for the defeat remain polemic. The populist view into the catastrophic infantry losses blame the impotence of the tanks at the start of

[5]William H.L. Watson, *A Company of Tanks* (Edinburgh: William Blackwood, 1920).
[6]Charles E.W. Bean, *The AIF in France 1917, Vol. IV of Official history of Australia in the war of 1914-18* (Canberra: Angus & Robertson, 1941).
[7]Jonathon Walker, *The Blood Tub: General Gough and the Battle of Bullecourt 1917,* (Staplehurst: Spellmount, 1998), pp. 91-113;
Graham Keech, *Bullecourt,* (Barnsley: Pen and Sword, 2014), pp. 25-68.
[8]J.P. Harris, *Men, ideas and tanks: British military thought and armoured forces, 1903-1939,* (Manchester: Manchester University Press, 1995), p. 96 & p. 98. The designation for the tank organisation from November 1916 was the Heavy Branch Machine Gun Corps before being renamed the Tank Corps in July 1917.

battle.[9] Gough also failed to respond to reports of the tanks' vulnerability at Arras. However, these arguments neglect the factors contributing to the Australian inability to hold the Hindenburg Line under pressure of the new German tactics of rapid counter attacks. A major deficiency at Bullecourt was the integration of artillery into this set-piece attack. Tanks replaced the creeping barrage, but poor communication hampered coordinating artillery support for the infantry, and late preparations left counter-battery fire ineffective at neutralisation.[10]

This paper revaluates the tank's involvement during the Battle of Bullecourt using contemporary archive accounts, available post battle literature, and photographic evidence. Through an analysis of their capability at Bullecourt, the development of tank doctrine can be expanded. The propaganda associated portraying tanks as the new wonder weapon of the battlefield was taken too literally and without a clear understanding of what a tank's capabilities were.

Prelude

On hearing of the success of Third Army opposite Arras Gough was enthusiastic to attack Bullecourt. He would use 4 Australian Division, I ANZAC Corps, and 62 British Division with 12 tanks of 11 Company, D Battalion, Heavy Branch Machine Gun Corps (HBMGC) in support. Delays of artillery, logistics and auxiliary services hampered Fifth Army's consolidation of their front line, but Gough proposed to proceed. However, barbed wire in front of the enemy's trenches remained uncut practically along the whole front and in some places it was up to 100 feet deep.[11] Major Watson commanding the tank company suggested an alternative to use the tanks as a mobile barrage and wire destroyer, and in a surprise strike. He planned an attack, on a narrow front of a thousand yards and supported as strongly as possible by all the infantry and guns available, to steal up to the Hindenburg Line without a barrage. As they entered the German trenches down would come the barrage, and under cover of the barrage the tanks and the infantry would sweep through, while every gun not used in the barrage would pound away at the German batteries.[12]

Gough agreed and the idea was taken up immediately. The tanks would instead lead an attack the next morning on 10 April with Australian infantry following behind. The

[9]See for example, Meleah Hampton 'My tanks were not to blame: The first battle of Bullecourt', *Wartime.* Issue 98 (2022), pp. 30-35.
[10]Nick Floyd, 'Seeds of Destruction: The Australian Field Artillery at Pozières and Bullecourt', In Westerman, W. & Floyd, N. (eds.) *Clash of the Gods of War,* (Newport: Big Sky Publishing, 2020), p. 214.
[11]The National Archives (hereinafter TNA) WO 95/3068, 62nd Division War Diary April 1917.
[12]Watson, *A Company of Tanks*. pp. 44-45.

Australians had no experience of operating with the new weapon to adapt existing tactics to the conduct of the armoured role. The standard doctrine of a lifting barrage that advanced in front of the infantry was dispensed with and was replaced by tanks. Unfortunately, production delays of the improved Mk IV tank meant the tanks deployed that day were the already obsolete Mk I and training Mk IIs.

An Aborted Attack

The plan caused some panic amongst Gough's Corps Commanders who felt his decision had been made in haste.[13] Lt General William Birdwood, the Australian Corps commander, later claimed to have protested. The Australians had previously suffered from Gough's poor planning at Pozières in 1916.[14] With Gough's eagerness to proceed he forced subordinate commanders to attack before they were ready and with little allowance made for preparation time.[15] This became evident when orders for the attack were still being issued on 10 April with 4 Division, only receiving their final orders at 12.25am leaving some four hours for preparation as zero hour was set for 04.30am.[16]

When the tanks failed to reach Noreuil by 05.00am the attack was called off.[17] The tanks began the journey to the battlefield on 9 April from their temporary base at Mory Quarry at 20.00. They were scheduled to be at the forming up positions before dawn near the abandoned railway embankment, which traversed the landscape at Bullecourt, approximately 8 km away. Unseasonal weather resulted in a freak blizzard which covered the tank approach through the Noreuil valley and they were detained by the adverse conditions. Lack of 'real-time' communication technology between tanks and HQ meant warning of their delay was not received until a tank commander arrived at brigade headquarters at Noreuil. After a 9 hour journey the tank crews were exhausted. It was impossible for the tanks to reach their allotted positions before sunrise. The waiting infantry were finally recalled to their billets behind Noreuil.[18]

Despite the Australian's cancelled attack, a provisional order to push troops of 62 Division on the left of the Anzac flank into Bullecourt had not been rescinded. Believing

[13]Jeff Hatwell, *No ordinary determination: Percy Black and Harry Murray of the First AIF,* (Fremantle: Fremantle Arts Centre Press, 2014), p. 192.
[14]Meleah Hampton, 'Hubert Gough, the Anzacs and the Somme: A Descent into Pointlessness', *British Journal for Military History* Vol. 2, Issue 3 (July 2016), pp. 47-61.
[15]Gary Sheffield & Helen McCartney, 'Hubert Gough Fifth Army 1916-1918', In Beckett, I.F. & Corvi, S.J. (eds.) *Haig's Generals,* (Barnsley: Pen & Sword, 2006), p. 85.
[16]Keech, *Bullecourt*, p. 35.
[17]Bean, *The AIF in France 1917*, p. 282.
[18]Ibid.

that the Australians were attacking, patrols of the West Yorkshire 185 Brigade probed to the west of Bullecourt, engaging the Germans but were heavily defeated.[19]

As the main Arras offensive had been in progress since 9 April, the German defenders had anticipated that this section of the line would also be attacked. *Generalmajor* Heinrich Maur, commanding the 27 Infantry Division, issued an order 'it must be assumed that there will be enemy attacks against [Sectors] A [Bullecourt] and C [Riencourt]'.[20] Mistaking the Yorkshires advance on the 10 April as a reconnaissance in force General Otto von Moser, the commander of XIV Reserve Corp (*Gruppe Quéant*), warned that the attack might be accompanied by tanks. His earlier diary entry for 8 April stated, 'the anxiety concerning them are grave, since they constitute a new means of warfare, exercising a strong moral effect on our infantry – we have as yet no experience in effectively dealing with them'.[21] It is clear that the threat of tanks was an issue for the Germans and in expecting an attack, despite their limited experience, were preparing to repulse them.

Tank Plans

At Noreuil on 10 April Watson briefed the tank commanders of the renewed plan to attack the next day and their assigned roles on a concentrated narrower front. Watson commented that,

> one or two of them naturally complained of changes made at such a late hour and they did not see how they could study their orders, their maps and their photographs in the hour and a half that remained to them before it was time for the tanks to start.[22]

The 12 tanks were now subdivided into three sections of four tanks: a right flank, left flank and a supporting centre section. The operation intended each section striking the trench at a separate point, with the centre section forging ahead and the flanking sections moving inwards and outwards, and as outlined in Figure 2.[23]

[19]Everard Wyrall, *The History of the 62nd (West Riding) Division 1914-1919,* (London: Bodley Head, 1925), pp. 42-43.
[20]Jack Sheldon, 'Bullecourt Day of disaster: The assault seen from the German side of the wire' *Wartime* Issue 63. (2013), p. 15.
[21]Cited by Bean, *The AIF in France 1917*, p. 345.
[22]Watson, *A Company of Tanks*, pp. 55-56.
[23]John F.C. Fuller, *Tanks in the Great War 1914-1918,* (New York: E.P. Dutton, 1920), p. 76.

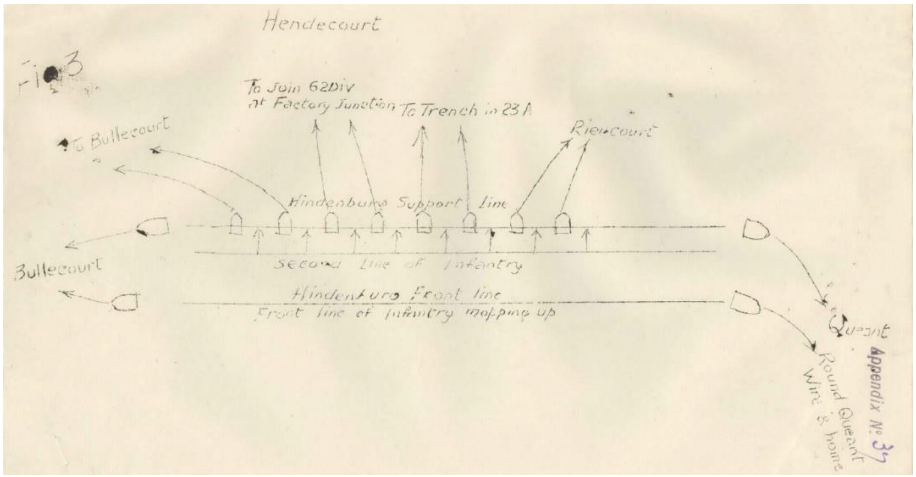

Figure 2: Objectives for the tanks after the Hindenburg support line (OG2) had been achieved by the second wave of infantry.[24]

The right flank consisted of Captain Wyatt's section, with tanks commanded by Lieutenants Puttock (D25-711), Davies (D26-799), Clarkson (D28-586) and Morris (D24-593). They were to approach the German trenches in front of Riencourt, leading the battalions of the 4 Brigade through the enemy wire. After reaching this initial objective, turn east towards the German's Balcony Trench and then southward, suppressing the enfilade fire coming from the direction of Quéant, eventually returning to a rally point.[25]

Lieutenant Hugh Swears' left section would lead 46 and 48 Battalions of 12 Brigade into the German forward positions east of the village, then turn outwards, followed by the infantry to storm Bullecourt and roll down the wire in front of it.[26] The tanks were commanded by Lieutenants Skinner (D23-796), Birkett (D30-797), and two unidentified officers (in D22-531 and D27-800).

The section of four tanks commanded by Captain Field assigned to the centre, comprised of Lieutenants Bernstein (D21-798), Money (D29-590), Head (D52-702) and McElvaine (D32-585). These were tasked with attacking along the central road

[24]Australian War Memorial (hereinafter AWM) AWM4 23/31/30, 14th Infantry Battalion War Diary April 1917.
[25]Captain Basil Liddell Hart, *The Tanks – The History of the Royal Tank Regiment and its Predecessors, Heavy Branch, Machine-Gun Corps, Tank Corps, and Royal Tank Corps, 1914-1945, Volume 1,* (London: Cassell, 1959), p. 101.
[26]Ibid.

towards the German trenches in a gap between the infantry of 4 and 12 Brigades. They would then assist the advance to the villages of Riencourt and Hendecourt. It would be essential for these tanks to cut through the wire and engage the enemy trenches. Watson stated,

> this movement was made necessary by the decision to attack not on a continuous front but up to slight spurs or shoulders. The Hindenburg line itself lay just beyond the crest of a slope. And these almost imperceptible shoulders ran out from the main slope at right angles to the (German) line. It was thought that the depression between them, would be swept by (enemy) machine-gun fire and it was decided in consequence to leave the attack up the depression to the tanks alone.[27]

Furthermore, the amended plan according to the drawn objective in Figure 2, shows half of the right section is to proceed to Riencourt, while the other half turns towards Balcony Trench. The centre section after suppressing the Hindenburg support line (OG2) is to split in half towards the trenches in U23a and the factory in U22b. The use of nomenclature OG1 and OG2 for the first and second line, was derived from the two lines of trenches which the Australians had encountered at Pozières the previous year, and colloquially known as Old German (OG) 1 & 2.[28]

The Main attack

The Australian infantry again left their billets and made their way to their front-line positions before dawn on the 11 April. They took advantage of the railway embankment for protection, which was some 900 metres from the Hindenburg Line. A level crossing was needed for the tanks to negotiate this obstacle. Forward of this, a sunken lane made a useful forming up position, with some assembly trenches having been constructed.[29] This sunken lane had previously been found by Captain Albert Jacka VC, 14 Battalion's Intelligence Officer during a reconnaissance on 8 April, 300 metres ahead of the battalion's advanced position.[30] By 04.15am, the assaulting troops were in position.

This could not be said of the tanks. At 03.00am, each tank should have been positioned, ready to advance. But it was at 03.20am that the first tank arrived and was guided into position ahead of 4 Brigade by Captain Jacka.[31] Tanks at this point arrived piecemeal

[27]Watson, *A Company of Tanks*, p. 54.
[28]Bean, *The AIF in France 1917*, p. 287.
[29]Hatwell, *No ordinary determination,* p. 195.
[30]Robert Macklin, *Jacka V.C.: Australian Hero* (Crows Nest: Allen & Unwin, 2006), p. 147.
[31]Bean, *The AIF in France 1917*, p. 290.

and were slowly directed into place as best as conditions could allow (Figure 3). One tank, likely 585, promptly got stuck in a bank and stranded itself in the sunken road infuriating Jacka, who had marked a suitable crossing place. Bean recognised that, 'It seems probable that the subaltern in the tank, realising that he was late, attempted a short cut to save time'.[32] The tanks allocated to 12 Brigade were not positioned in U28d by the start time.

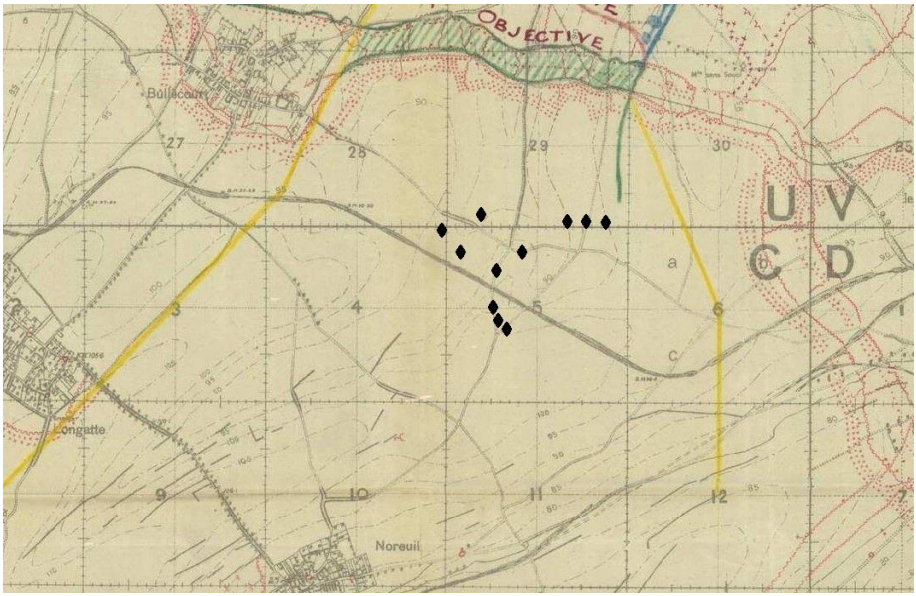

Figure 3: Trench map of Bullecourt sector showing approximate start positions of the tanks, represented as black diamonds, at 04.45am on 11 April 1917. Based on Bean.[33]

It became standard practice during the initial phases of tank deployment on the Western Front to use various methods of 'noise' activity to disguise their presence near the immediate vicinity of an offensive. This was achieved either by aircraft flying overhead, or the tanks approach being drowned out by continuous machine gun or artillery fire as they moved into position. Unfortunately, this was not achieved. Orders that machine-gun fire must be arranged, vaguely percolated through to the machine-gun companies, but through lack of experience with tanks, its full intention was missed.[34] As the tanks approached, soldiers within the Australian lines heard and saw

[32]Ibid., p. 291.
[33]Ibid., p. 292.
[34]Ibid., p. 290.

them coming in the darkness by the shower of sparks rising from their exhaust baffles.[35] Similarly, this was reflected in the German lines, when at 02.00am posts of the Infantry Regiment 124 and later at 03.00am, Grenadier Regiment 123 detected the sound of petrol engines. It was only faintly heard through the artillery fire, but tanks were at once suspected.[36]

Enemy forward observation posts duly reported activity to their Company HQ where Von Moser reiterated that the tanks must be fired on, not only by the special anti-tank guns built in or near the firing line, but generally by every field or heavy battery that sees one approaching; and when they come closer, by the machine guns provided with new steel, armour piercing 'K' bullets.[37] The German defenders saw the tanks as daylight broke, and they 'were all too visible targets on the snow-covered ground'.[38] At zero plus 30 minutes a protective flanking barrage ceased, to eliminate the risk of the tanks being hit. Conversely, this exposed the advancing infantry and tanks to deadly enfilade fire from the eastern side of Bullecourt village and the Balcony Trench.

The Tanks Advance: Right Flank Attack - Tanks 711, 799, 586, 593

Despite being vital to the operational plan as the means of cutting the wire and providing a mobile barrage, only three of the section's four tanks were in position to commence on time at 04.30am. Lieutenant Puttock in Tank 711 proceeded in the dark towards his objective. Amongst the bombardment, the tank was receiving small arms fire from the German trenches. Men watching from close in the allied rear could at times see their shapes outlined by the sparks of the bullets that rattled against their sides.[39] Part way towards the objective 711 stopped and opened fire. In the darkness Puttock may not have known how far he had advanced and mistakenly thought any troops immediately to his front were the enemy. Swinging to the right as ordered, the tank glided along the wire of Balcony Trench. However, serious clutch trouble developed in 711 which was barely moving and the decision to retire was taken.[40] As the tank withdrew, it was attracting closer attention from artillery and Puttock decided to abandon the tank on the southern side of the embankment. The HBMGC operational diagram (see Appendix A) shows 711 as breaching the German lines before returning near to its start position. A hand annotated map (see Appendix B) which also forms part of the war diaries, records the movements of tanks during the assault. However, the tanks themselves are not identified and the map does not overall accurately support the operational diagram except in a very broad interpretation.

[35]Walker, *The Blood Tub*, p. 94.
[36]Bean, *The AIF in France 1917*, p. 347.
[37]Ibid.
[38]Liddell Hart, *The Tanks,* p. 101.
[39]Bean, *The AIF in France 1917*, p. 295.
[40]Watson, *A Company of Tanks*, p. 61.

Puttock's tank is shown to have returned safely through square C6. Tank 711 would eventually be salvaged with running repairs and eventually onto a rail head under her own power.[41]

Lieutenant Morris in 593 suffered a minor ditching on a bank near Noreuil while moving up, delaying his start time.[42] There are no identifiable records of 593's progress in No Mans Land until its return to the embankment where help was given to Tank 796, which had either stalled or had got stuck near the former railway. Watson states, 'Morris passed a line to Skinner (of the left section) and towed him over the embankment'.[43]

Figure 4: Tank 593 can be identified by the serial number on the left rear of the tail, faintly visible in the image. It is facing north in the direction of the German trench line. Trench signs identify the location as the junction of Tank Avenue and Horseshoe Lane (Author's collection).

[41]Captain R.P. Butler, 'Reminiscences of salvage work', *The Royal Tank Corps Journal* (June, 1932).
[42]Watson, *A Company of Tanks*, p. 60.
[43]Ibid., p. 61.

Morris and Skinner eventually set off in the direction of Bullecourt. There is no further mention of 593 in Watson's account. Bean noted that the location of the wrecked 593 is uncertain, marking the wreck near the level crossing of the embankment.[44]

Furthermore, the HBMGC's operational diagram (see Appendix A) shows that 593 did not reach its objective but stopped somewhere in between the British and German positions. This contradicts D Battalion's war diary entry which states 593 returned safely to the rally point, the likely basis of Bean's final map position.[45] This is resolved by a German photographic postcard from 1918 which shows 593 wrecked at the junction of Tank Avenue and Horseshoe Lane (Figure 4); trenches dug during the second battle at the former Australian 12 Brigade's jump off position. The photo confirms that Morris, after helping Skinner was headed in the direction of Bullecourt or OG1 when his tank was either knocked out or broke down.

Clarkson in 586 made it as far as the barbed wire in front of OG1 at approximately 05.30am where he stopped. The tracks were jammed by detritus, and a witness to this, Lance Corporal Bert Knowles of the AIF, stated,

> a tank penetrated the front line of the wire. In passing fairly close to it, I remember a chap standing near the front of it, with a short plank, trying to lever a piece of iron from amongst the big cogs beneath the wheels, and cursing like a bullock whilst the bullets were rattling like hail on the tank itself.[46]

The appearance of 586 caused some panic amongst the defenders in the trenches and the *Württembergische* of Infantry Regiment 124 dispersed, allowing the Australian infantry to gain the first trench.[47] Eventually, 586 continued to advance and crossed OG1 advancing towards OG2. Artillery located either side of Riencourt targeted the tank while it returned and re-crossed OG1 where it turned to face Riencourt. Private McCallum, who had managed to enter OG1 was taking shelter after consolidating a dug-out and states,

> we had been in the trench about an hour and it was broad daylight when along came one of our tanks and stopped right over the top of the trench I was in. I could see the bullets bouncing off it like hail stones, and they began to shell it. I saw a shell hit it and stand it right up on end.[48]

[44]Bean, *The AIF in France 1917*, p. 314.
[45]TNA WO 95/110/2, Diary of D Company Heavy Section Machine Gun Corps.
[46]John Ramsland, *The Legacy of Douglas Grant: A Notable Aborigine in War and Peace,* (Melbourne: Brolga, 2019), p. 97.
[47]Bean, *The AIF in France 1917*, p. 348.
[48]NAA PP2/8 M12923, MCCALLUM, Angus Duncan - Service Number - 6303.

Clarkson was subsequently killed, but some of the crew would later be taken prisoner. The operational diagram (see Appendix A) shows in error the location of the destroyed tank in Hendecourt. A photograph (Figure 5) confirms the tank's location near to a trench determined as OG1.

Figure 5: Tank 586's serial number is faintly visible on the left rear tail above some battle damage on the hull plating. Germans can be seen in the trench of OG1 (Author's collection).

Lieutenant Davies in 799 was to help 4 Brigade to enter OG1 and OG2 and consolidate the position before assisting in the advance on Riencourt. Starting on time, but going off course in the darkness, the tank travelled east instead of north. It subsequently attacked the northern end of Balcony Trench rather than OG1.[49] After crossing the first line the tank advanced about 40-50 metres towards the second line where it was engaged by *Leutnant* Gotthold Schabel of Grenadier Regiment 123 with a machine gun, armed with armour piercing ammunition.[50] Engaging the tank at approximately 150 metres he fired about 1200 rounds while the tank tried to manoeuvre and it burst into flames. Davies was killed but some survivors were captured and taken prisoner.[51] This was the first tank to be knocked out and captured within German lines and gave the first opportunity to securely examine one. The

[49]Bean, *The AIF in France 1917*, p. 347.
[50]Sheldon, 'Bullecourt Day of disaster', p. 17.
[51]Bean, *The AIF in France 1917*, p. 347.

discovery of the effect of K rounds led to the publication of a German intelligence order that all infantry should in future carry a certain amount of this ammunition type.[52]

A German image of 799 (Figure 6) shows the destroyed tank. The wreck earnt the dubious honour as one of the most photographed tanks of the war. Additionally, a German aerial photograph confirms its location after having penetrated Balcony Trench facing eastwards and is annotated with its direction of movement (Figure 7). This position was on a reserve slope which contributed to the British accepting a report that the tank, incorrectly, was knocked out in Hendecourt as shown on the operational diagram (Appendix A). However, the movement map (Appendix B) correctly records the tank knocked out in U30. This discrepancy between the knocked out tank in Balcony Trench, while recording two other tanks in Hendecourt, confirms British confusion reporting the right section's achievements.

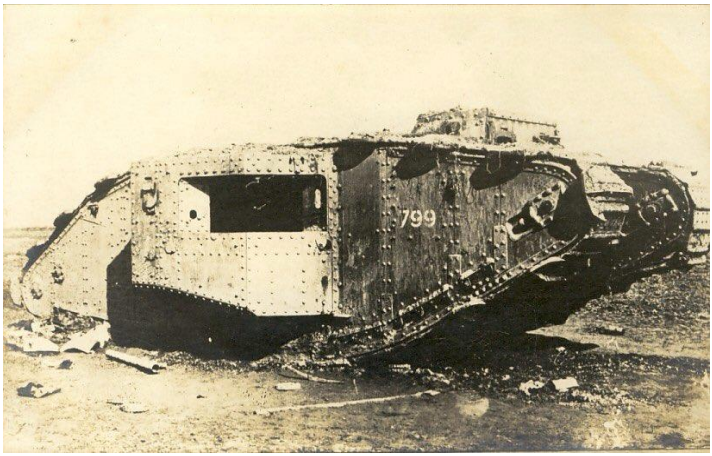

Figure 6: The wreck of Tank 799 behind German lines (Author's collection).

The tanks of Wyatt's section arguably made the greatest gains, with Tank 586 assisting the infantry to break into the Hindenburg Line and secure a foothold after panicking the defenders. The wayward Tank 799 likely contributed to reduce early infantry casualties from enfilade fire as enemy machine gunners in Balcony Trench focused on disabling the armoured hulk.

[52]Fuller, *Tanks in the Great War,* p. 88.

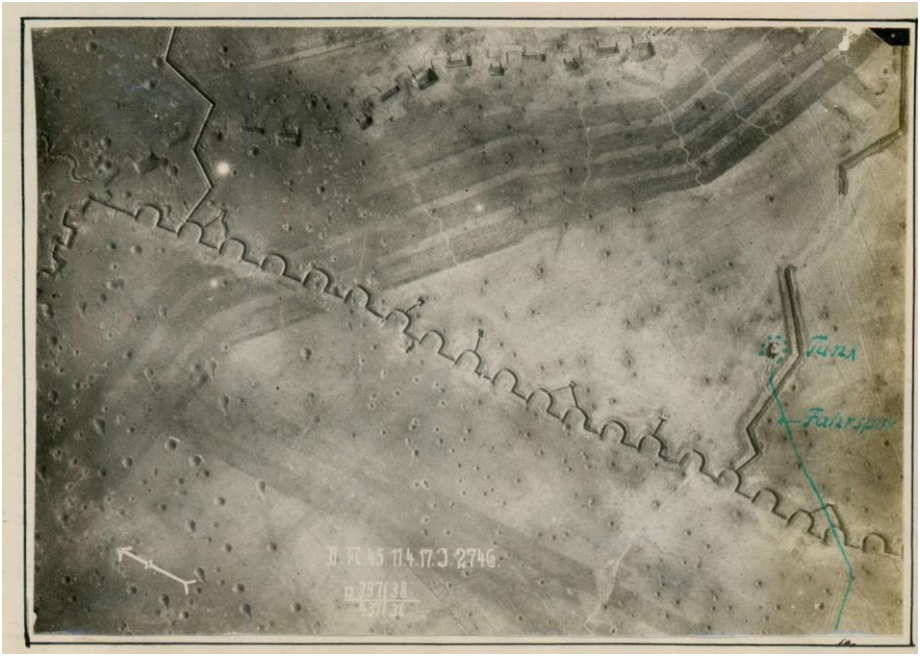

Figure 7: A German aerial photograph taken on day of battle illustrating Tank 799 which had penetrated *Balkon Stellung* (Balcony Trench).[53]

Centre Section Attack – Tanks 798, 590, 702, 585

The centre section of four tanks was reduced to three when 702, commanded by Lieutenant Head, broke down and did not participate in the coming attack. Lieutenant McElvaine in 585 made no progress after being stuck in a bank and stranded. A shell struck the track with the crew evacuating it before receiving a direct hit.[54] Now lying exposed it was further hit during the hours of daylight before it could be repaired.[55] The operational diagram (Appendix A) shows 585 as being destroyed before reaching its starting point.

[53]Landesarchiv Baden-Württemberg – Generallandesarchiv Karlsruhe, Foto dreier zerschossener Panzer und eines abgestürzten feindlichen Flugzeugs bei der deutschen Stellung südlich von Bullecourt (Luftbild) [Photograph]. Available at: https://www2.landesarchiv-bw.de/ofs21/bild_zoom/zoom.php?bestand=13755&id=7570875&screenbreite=1280&screenhoehe=984. Accessed 17 September 2022.

[54]Walker, *The Blood Tub*, p. 97.

[55]Watson, *A Company of Tanks*, p. 62.

Lieutenant Money commanding 590 advanced and proceeded to reach the thick belts of barbed wire protecting OG1 in the central depression. The tank caught fast in the wire, making it impossible to extricate itself. It is estimated that at about 06.00am as the tank rocked backwards and forwards, it took direct hits from enemy artillery, as well as a stream of armour piercing rounds which cut through the tank's hull rupturing the fuel tank which then exploded.[56] The HBMGC operational diagram and map (see Appendices A & B respectively) shows a tank in U29a whose movements conform to this description. Further evidence to this tank can be seen in a German aerial photograph (Figure 8) which shows its location near to OG1.

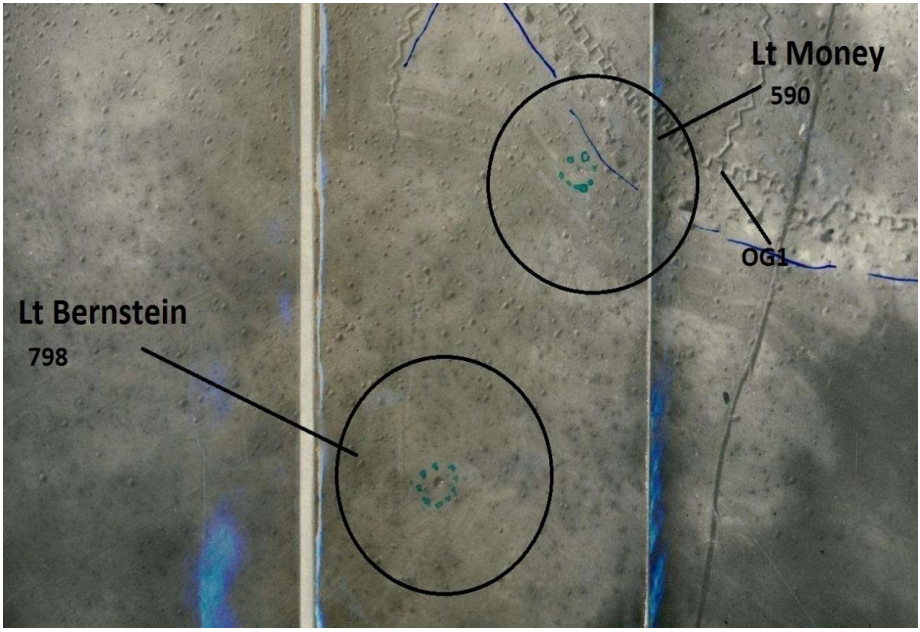

Figure 8: A German aerial photograph illustrating two tanks which can be identified as 590 and 798.[57]

[56]Walker, *The Blood Tub*, p. 98.

[57]Landesarchiv Baden-Württemberg – Generallandesarchiv Karlsruhe, Foto der deutschen Stellungen und englischer Panzer südlich von Bullecourt (Luftbild). [Photograph]. Available at: https://www2.landesarchiv-bw.de/ofs21/bild_zoom/zoom.php?bestand=13755&id=7570884&screenbreite=1280&screenhoehe=984. Accessed 17 September 2022.

The practice of pairing male and female tanks saw Lieutenant Bernstein in Tank 798 accompany Lieutenant Money.[58] As 798 advanced in the darkness it turned to move along the front of the infantry's jump off position and opened machine-gun fire on their shallow trench. Soldiers of 46 Battalion shouted an alert which stopped the firing and prompted the tank officer to appear and apologise for the mistake, as well as his asking which way are the German lines.[59] 798 then having been redirected moved off towards its objective but almost immediately, the tank was hit in the cab, decapitating the driver in the process. Bernstein was stunned and temporarily blinded but managed to escape and reach the safety of the embankment. As the crew were crawling out, a second shell hit the tank roof.[60] Although the HBMGC operational diagram (see Appendix A), shows 798 within the German front line system, the aerial photograph (Figure 8) confirms the tank mid-way between the Australian forward line and OG1. Bean states this tank as being hit twice when near the starting point.[61]

The destruction of the three tanks without achieving their first objective, meant the Germans still held this section of Hindenburg Line. The defenders were then able to bring reinforcements forward and launch counter attacks against the Australians, which had captured the adjacent trenches towards Bullecourt and Riencourt but were unable to link up.

The Left Flank Attack – Tanks 796, 797, 531, 800

The original 12 Brigade plan for the attack on 11 April specified zero hour at 04.30am, and after the tanks indicated with a green disc signal they had secured the Hindenburg Line, the infantry would advance. In the last issued battle plan, this order was cancelled, and the infantry were to advance 15 minutes after the tanks commenced the attack. It is uncertain if 46 Battalion received the revised order, and there was no contingency detail if the tanks did not arrive on time. The late appearance of only two tanks, most likely from the centre section, resulted in confusion over the start for the lead battalion, which was delayed until after 05.00am. No explanation for the left section's late arrival has been afforded.

Lieutenant Birkett in 797 eventually arrived near the location of 48 Battalion HQ, at approximately 06.30hrs. This was some two hours after the planned jumping off by 12 Brigade. There is no report as to why Birkett's tank was delayed. However, Walker claims Birkett had initially moved too far to the right and was directed back towards

[58]Male tanks were armed with a 6 pounder gun in the sponsons, whereas females had Vickers machine guns.
[59]Bean, *The AIF in France 1917*, p. 305.
[60]Watson, *A Company of Tanks*, pp. 62-63.
[61]Bean, *The AIF in France 1917*, p. 315.

Bullecourt by Swears.[62] On arrival he asked Lt Colonel Raymond Leane what he should do and was requested to support the left flank of 48 Battalion. Leane pointed out the position of a German machine gun firing from Bullecourt and asked for it be suppressed.[63] The tank advanced about 300 yards to the jump off trench and opened fire. Turning back, it was targeted by German gunners. Near the embankment Birkett stopped the tank to take his bearings. As Birkett was climbing out of the tank, a shell burst against its side and wounded him in the leg.[64] Birkett would receive further injuries whilst outside, and along with crew casualties, prompted the tank to be abandoned.

Figure 9: Tank 797. The serial number is visible on the right-hand front tank plating (Author's collection).

As the tank was visible to enemy gunners, it was continually shelled and it later burst into flames.[65] Its final position can be determined by its proximity to 48 Battalion's advanced HQ. The HBMGC operational diagram (see Appendix A) has 797 entering Bullecourt and returning to the British lines. While the map (see Appendix B) likely identifies 797 as damaged but got back safely, incorrectly through square C3. A

[62]Walker, *The Blood Tub*, p. 99.
[63]Bean, *The AIF in France 1917*, p. 315.
[64]Watson, *A Company of Tanks*, p. 63.
[65]Bean, *The AIF in France 1917*, p. 315.

contemporary photograph of the tank (Figure 9) shows 797 with damage to the roof and scorching to the plates and gun sponson. Captain Jacka commented on this tank and stated,

> one tank returned almost to Reserve Battalion Headquarters, pulled up right on the skyline and in full view of Bullecourt, thereby making a splendid aiming mark and drawing severe enemy gun fire which made the route very dangerous for troops'.[66]

Lieutenant Skinner had been delayed until his ditched Tank 796 (on the embankment) was extricated by Morris. Skinner made for Bullecourt between approximately 08.00am and 09.00am, thinking that as the battle had been in progress for more than three hours, the Australians must have fought their way down the trenches into the village.[67] Progressing across the battlefield and seemingly attempting to follow the southern prong of the planned envelopment of the village, his movement was stopped by an impassable shell crater to their front. Watson stated, 'he tried to reverse, but he could not change gear, the tank was motionless'.[68]

Figure 10: A German propaganda photographic postcard showing a tank near their trench lines at Bullecourt identifying Tank 796 (Author's collection).

[66]Macklin, *Jacka V.C.*, p. 164.
[67]Watson, *A Company of Tanks*, p. 64.
[68]Ibid.

The German machine guns concentrated upon it and some of the crew were wounded by the splinters of metal (spalling) which were sent flying about its interior. The Germans then brought up a trench mortar and the tank commander withdrew his crew.[69] Skinner then made his way back to the embankment through No Mans Land without further casualties. Simultaneously the section commander, Swears, had set off on foot from the rail line to evaluate the situation in the village and was never seen again. The operational diagram and map (see Appendices A & B) claim the tank within the confines of the village in U28a. However, a German photograph taken from their lines (Figure 10) shows the destroyed 796, with further confirmation from the aerial photograph (Figure 11) showing its location outside the edge of the village.

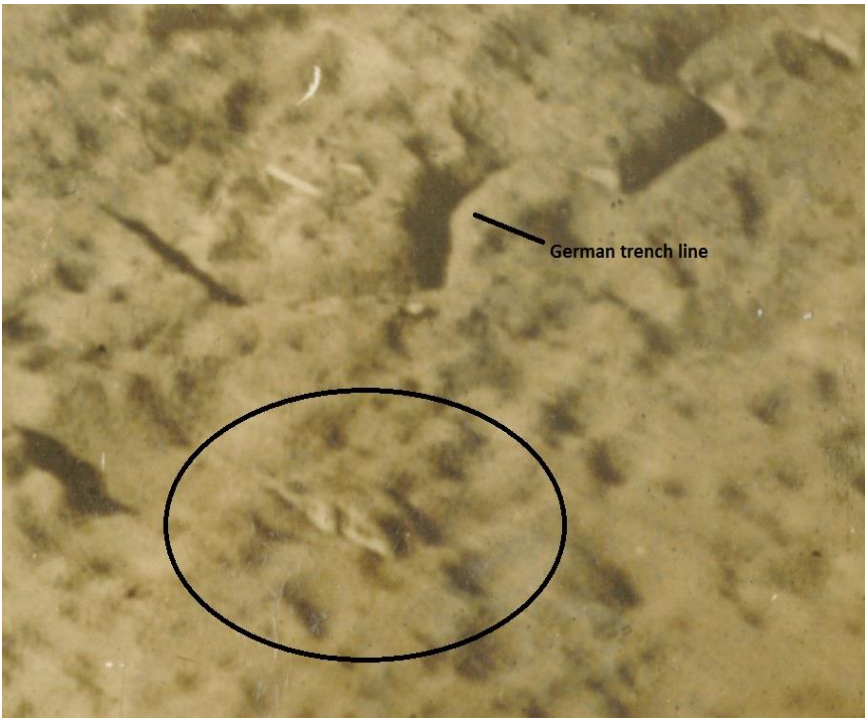

Figure 11: Tank 796 close up from an aerial photograph showing its proximity to the first German trench (OG1) on the southeast corner of village.[70]

[69]Bean, *The AIF in France 1917*, p. 316.

[70]McMaster University Digital Archive, 51b.P18 [Bullecourt] April 24, 1917: France. Available at: http://digitalarchive.mcmaster.ca/islandora/object/macrepo%3A4948. Accessed 17 September 2022.

There are no accurate accounts to describe the movements of Tanks 531 and 800 which are specifically named in the battle order. Watson does make a brief mention regarding what is probably tank 800 and states, 'the fourth tank of this section was hit on the roof just as it was coming into action. The engine stopped in sympathy and the tank commander withdrew his crew from the tank'.[71] Walker attributes this as being Lieutenant Richards and crew and confuses this with Leane's interaction with Birkett's crew.[72] In a later entry Watson stated, 'we heard the noise of a tanks engine...it was the fourth tank of Swears' section which had been evacuated after a shell had blown a large hole in the roof'.[73] The operational diagram (see Appendix A) shows 800 reaching Bullecourt and returning to the British Lines. The map (see Appendix B) traces a line moving towards the German positions but flanking left and returning to a position past the embankment via square C3. Further reference is made to this crew when Watson states

> when the crew left the tank and were well on their way to Noreuil, the tank corporal remembered that he had left his primus stove behind. It was a valuable stove and he did not wish to lose it. So he started back with a comrade and later they were joined by a third man. They reached the tank, which the German gunners were doing their very best to hit it, and tried to start the engine. To their immense surprise it fired and the three of them brought the tank and the primus stove safe into Noreuil.[74]

This incident may be the same crew which elicited a scathing reference made by Captain Jacka when he stated

> one crew in particular when asked why they had vacated their tank, stated that it had caught fire, but gave no reason for same. The same crew returned carrying sandbags, one containing enamelware and the other food. Personal safety and comfort seemed to be their sole ambition.[75]

Tank 531 has no reference to its movements except the operational diagram (Appendix A), which states the tank reached the German line at OG1. Bean identifies this as Tank 8 in his map of final positions, indicating its location near the wire at the north-east edge of Bullecourt village.[76]

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[71]Watson, *A Company of Tanks*, p. 64.
[72]Walker, *The Blood Tub*, pp. 97-98.
[73]Watson, *A Company of Tanks*, p. 65.
[74]Ibid.
[75]Macklin, *Jacka V.C.*, p. 164.
[76]Bean, *The AIF in France 1917*, p 310.

Overall, the tanks made no material assistance to 12 Brigade which found the wire in front of the trenches intact. Leane's HQ being shelled due to the nearby target of 797 and his battalion being cut off in OG2 left him overly critical in assessment of the tanks. By 07.00am the majority of the tanks in the re-entrant had been destroyed ending their involvement in the battle, except that for Lieutenant Skinner in 796. However, his actions as described above would see his tank abandoned as unrecoverable by 09.30am.

Recrimination and Blame

From the arrival at the battlefield to the end of their individual actions, the tanks were never a cohesive force and operated almost independently of any command. The haphazard nature of the attack may be recognised by the final positions the destroyed and wrecked tanks have on their battlefield dispositions - as described previously and as shown in Figure 12. This diagram updates all previous versions from contemporary war diaries and national official histories, by combining mapping, aerials and tank identities through serials in German postcards.

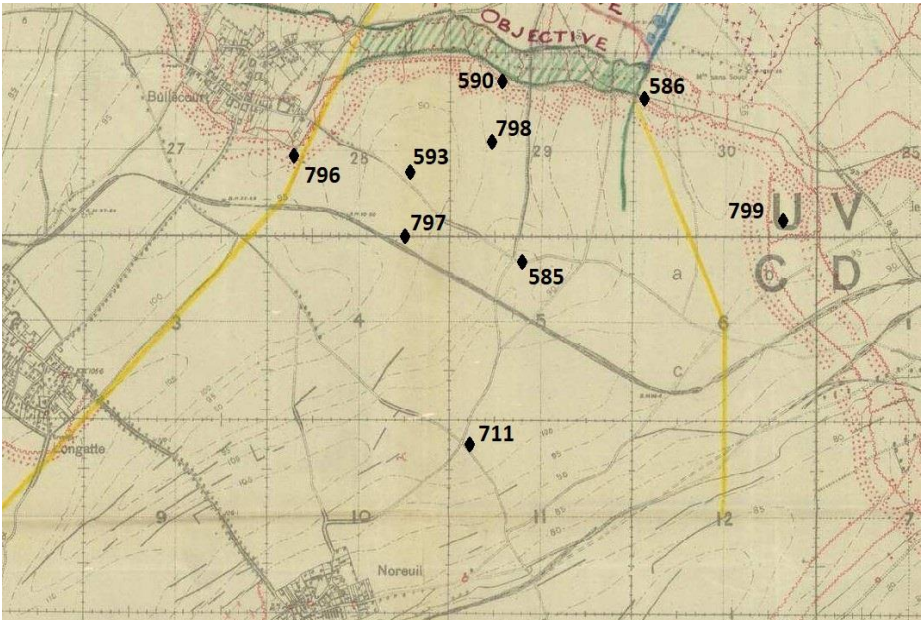

Figure 12: The location of the tanks and their respective final positions are shown at approximately 09.30am on 11 April 1917. Tank 531 is not represented as its final location has not been reliably identified. Tank 800 was later knocked out that day further south at Vraucourt Copse.

The Australian infantry would continue to hold and fight in the captured trenches of OG1 and OG2 until about 11:00am when the decision to withdraw was taken. The pressure of German counter attacks on both flanks of each brigade was exacerbated by the tanks failure to clear the objectives at Central Road.

Amongst the recriminations and blame for what became a disastrous assault, the tanks and their crews would become the main reason for the assault's failure. Australian command vented their anger on those they thought were responsible with Lt Colonel Leane accusing the tank crews of cowardice and incompetence.[77] Captain Edgar Rule from 14 Battalion stated that 'he never saw a more windy lot of officers…it was not the tanks' fault, but the chicken hearts who manned them'.[78]

The unfortunate occurrences of the tanks firing on the Australians during the initial stages brought bitterness amongst the soldiery and caused Lt Colonel Drake-Brockman, 16 Battalion, to comment that

> the tank crews seemed to know nothing whatsoever about the particular operation they were to participate in and they did not know the direction of the enemy. This is verified by the fact that they opened fire on our own troops, causing many casualties[79]

Similar mishaps had been experienced previously at Flers–Courcelette, and don't appear resolved for the Bullecourt operation.[80] Lt Colonel Ernest Swinton who wrote many of the training and operational notes on employment of tanks stated, 'the best moment for the start will be just before dawn, as soon as there is sufficient light in the sky to distinguish objects to some extent'.[81]

Major Watson maintained that 'while the Australians in their bitterness of their losses looked for scapegoats, and found them in my tanks, my tanks were not to blame'.[82] After the war, he faced criticism for attacking a 1500 yard front without support on either flank. In their defence, Watson continued

> it must not be forgotten the attack ought to have been, and in fact was, expected. The artillery support was very far from overwhelming, and the

[77]AWM26 171/18, German Withdrawal 12th Infantry Brigade 8 to 13 Apr 1917.
[78]AWM38 3DRL 606/245/1, Diary of Capt. E.J. Rule.
[79]TNA WO 95/3488, 4 Australian Infantry Brigade Headquarters. Jan. - Dec., 1917.
[80]Harris, 'The Rise of Armour', p121.
[81]Harris, *Men, ideas and tanks*, p. 56.
[82]Watson, *A Company of Tanks*, p. 69.

> barrage, coming down at zero, gave away the attack before my tanks could cross the wide No Man's Land and reach the German trenches.[83]

Aftermath: Learning From Trial and Error

The perceived benefit of the tanks at Bullecourt was reinforced by the Heavy Branch's commander, Lt Colonel Hugh Elles' congratulatory 'the best thing tanks have done yet'.[84] The tank's chief staff officer, John Fuller, stated Bullecourt embodied his earlier concept tanks could potentially perform better when the artillery provided little to no preliminary bombardment to prevent destroying the ground.[85] However, counter battery work was essential for the tanks' protection and the tanks should be used in mass and a strong reserve held.[86] Later at Hamel with their experience of Bullecourt, the Australian staff insisted Lt General John Monash, the newly appointed commander of the Australian Corps, use a creeping barrage which was originally dispensed with.[87]

Senior tank officers believe two machines reached as far as Hendecourt in the German lines and continued to argue this point post war in defence of the tank's achievements in the assault.[88] Fuller added, whether the tanks actually crossed the Hindenburg Line or not was immaterial. Tank Corps HQ believed so and the tactics of the victory at Cambrai were based upon the belief.[89] After Arras, GHQ resolutely had faith in the potential of tanks. Haig wrote to the war office on 5 June 1917

> events have proved the utility of Tanks both as a means of overcoming hostile resistance and as a means of reducing casualties in the attacking troops and I consider that sufficient experience has now been gained to warrant the adoption of the Tank as a recognized addition to the existing means of conducting offensive operations.[90]

Furthermore, Elles reinforced in January 1918 that if infantry were

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[83]Ibid., p. 70.
[84]Watson, *A Company of Tanks*, p. 71.
[85]John F.C Fuller, *Memoirs of an Unconventional Soldier,* (London: Ivor Nicholson and Watson, 1936), p. 103.
[86]Fuller, *Tanks in the Great War,* p. 89.
[87]Robin Prior & Trevor Wilson, *Command on the Western Front,* (Oxford: Blackwell, 1992), p. 297.
[88]Watson, *A Company of Tanks*, p. 71.
John H.C. Fuller, 'The Tanks at the Battle of Bullecourt – 11 April 1917', *The Royal Tank Corps Journal* (July 1933).
[89]Fuller, 'The Tanks at the Battle of Bullecourt – 11 April 1917'.
[90]TNA MUN 4/2791, Haig to War Office 5 June 1917.

> trained to co-operate with Tanks and Aeroplanes, not only will its potential hitting power be increased many times, but a new method of warfare may be inaugurated against which the enemy is at present impotent.[91]

Mk IV tanks were introduced at Messines in June 1917 and these were more reliable and better armoured, and proof against K rounds, which lessened their vulnerability compared to the Mk I and Mk IIs. The increasing success of tank operations seen at Cambrai on 20 November 1917, and combined arms tactics with improved Mk Vs at Hamel on 4 July 1918 culminated in the Battle of Amiens on 8 August. This initiated the campaign that led to the Armistice 100 days later. The tank became an important element in the Allied ability to achieve success in the final months of war.

Foley advocates the British Army having become an organisation with an informal method of learning which often produced technological solutions, such as the development of the tank to deal with the tactical and operational challenges of the battlefields of the First World War.[92] After Arras, it was realised that efficient communications were a prerequisite for the successful employment of tanks in battle.[93]

However, the lack of effective inter-tank and tank-rear HQ communication remained a technical disadvantage throughout the war, which despite experimentation continued to hinder command and tank operations on the Western Front.[94]

Conclusion

The available literature associated with the movements of tanks at Bullecourt is limited. The narrative to describe the actions of the individual tanks is generally derived from Major Watson's account which Bean refers to as a reference within the Australian Official History. Bean additionally used German unit histories for an alternative viewpoint, which confirmed the moral effect of the tanks 'crippling resistance' and 797's fate.[95] Further individual actions and the identity of the tanks in texts have historically been difficult to interpret in the absence of battle history sheets and accurate reports. The final positions of the tanks in this study (Figure 12 above) were largely determined from postcards of Germans posing with their prized trophies compared against aerial landscapes.

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[91]AWM26, 481/8, Elles to GHQ 3 Jan 1918.
[92]Robert Foley, 'Dumb Donkeys or Cunning Foxes? Learning in the British and German Armies during the Great War', *International Affairs* 90/2 (2014), pp. 16–19.
[93]Brian Hall, 'The Development of Tank Communications in the British Expeditionary Force, 1916-1918', In Searle, A. (ed.) *Genesis, Employment, Aftermath: First World War Tanks and the New Warfare, 1900-1945,* (West Midlands: Helion, 2015), p. 136.
[94]Ibid., p. 137.
[95]Bean, *The AIF in France 1917*, p 347.

The haste of organising the attack at Bullecourt demonstrated that planning was crucial for operations to achieve success. The late arrival of the tanks was due to poor tactical reconnaissance and underestimating the time required to reach their destination, and also by being hampered by darkness and undesirable weather conditions. A suitable lead time was unavailable due to the urgency with which General Gough wanted to assault the village. Furthermore, the hurried briefing of amended objectives on the battle eve compounded the confusion. The unfamiliar terrain of the battlefield contributed to failure of the tanks to follow their planned course of action. The crews had spent between 14 to 16 hours in a tank within a period of 35 to 37 hours and were under severe strain and suffering from the effects of carbon monoxide poisoning, heat stress and general confusion.[96] Bullecourt can be viewed as providing a prime example of prolonged exposure to adverse conditions in the confines of a hull as being detrimental to combat effectiveness, an issue that could not be resolved given the limitations of FWW tank technology.

The infantry had no cooperative rehearsal to work in partnership with tanks for the assault, which reinforced the recommendation for combined training in future preparations. In addition, unfamiliarity with the need for noise cover during the tank approach, meant bombardment by alerted defenders increased the difficulty of guiding the tanks into assault formation. The heavy loss of tanks from the German artillery reflected the need for effective counter battery fire. Elles was informed that 90% of tank casualties at Arras were due to being hit while stationary in order to stop, swing and turn the tank.[97] Post battle allegations of cowardice or a failure of morale amongst the tank crews may be challenged in that the majority of the tanks were destroyed and that there was an approximate 50% casualty rate of tank personnel.[98]

The tanks helped distract the enemy's attention from the advancing infantry because the Germans concentrated on destroying the tanks in the early part of the attack. This contributed to the infantry suffering less casualties in this phase of battle.[99] Combined with some panic amongst the German defenders at the approaching tanks, this provided opportunity for the infantry to seize the first line of trenches. A standing barrage was not prioritised to subdue German counter attacks and the infantry were left unsupported in their consolidation of captured trenches. Failure came at a significant infantry cost.

[96]David Brown, 'Never mind the heat, never mind the noise: Understanding the working conditions of tank crews during the First World War', *Journal of the Society for Army Historical Research* (2020).
[97]TNA, WO 158/814, Elles to Anley 23 April 1917.
[98]Watson, *A Company of Tanks*, p. 66.
[99]Ibid., pp. 70-71.

Most importantly, the tank's effective integration into complex combat operations proved difficult to plan and execute in early 1917. High command was slow to adopt the concept of combined arms doctrine and preferred to believe tanks could be a war winner alone.

Overall, the preparations for the Bullecourt attack were too hasty, and were then compounded by changing the plans the night before the battle, combined with poor cooperation, inadequate artillery resources in support and insufficient tank numbers assaulting a narrow salient.[100]

Later recognition of the tank's limitations were learnt by trial and error and enabled the adoption of successful tactical and operational doctrine for set-piece attacks. Tanks proved to be an important element in the development and perfection of all-arms battles as the war progressed in 1918.

[100]Fuller, *Tanks in the Great War,* p. 88.

Appendix A

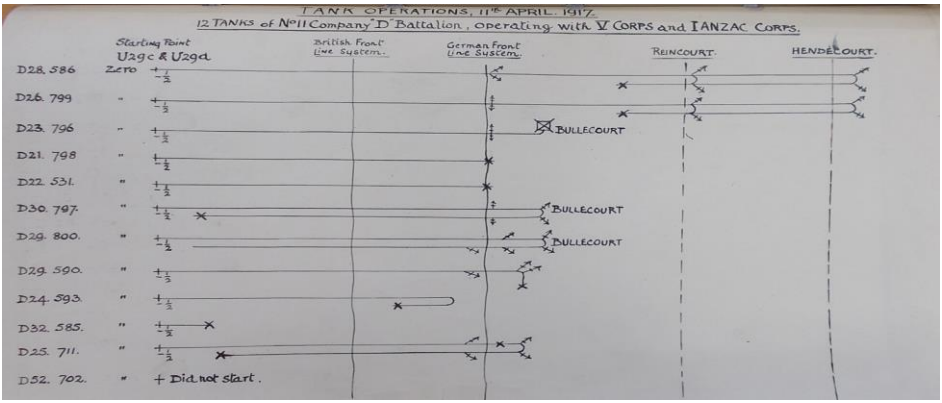

Figure 13: Tank Operations diagram 11 April 1917.[101]

[101] TNA, WO 95/91/4, Tank Corps War Diary 'Report on the Action of Tanks at the Battle of Arras. 9th to 13th April 1917', 27 April 1917; 'Summary of Tank Operations 1st Brigade, Heavy Branch. 9th April-3rd May 1917', 17 May 1917.

Appendix B.

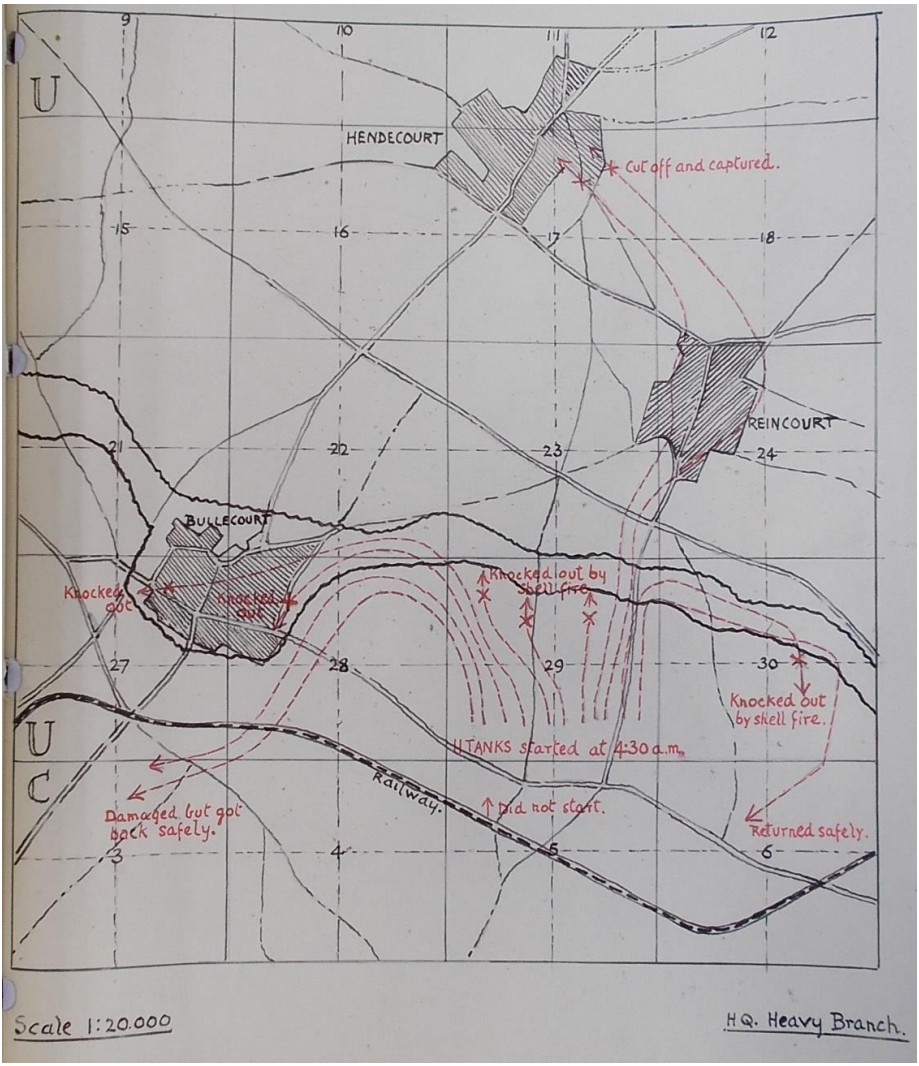

Figure 14: Hand annotated map of tank routes during course of battle 11 April 1917.[102]

[102]TNA, WO 95/91/4, Tank Corps War Diary 'Report on the Action of Tanks at the Battle of Arras. 9th to 13th April 1917', 27 April 1917; 'Summary of Tank Operations 1st Brigade, Heavy Branch. 9th April-3rd May 1917', 17 May 1917.

Hitler's Willing Soldiers: Austrian Mountain Troops at Narvik 1940

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ABSTRACT
The Austrian post-war narrative of service in the Wehrmacht was that Austrian troops were either unwilling participants in German aggression or were motivated by a sense of anti-Bolshevism. This article, drawing on a number of German language accounts of the Narvik land campaign, suggests that Austrian officers and soldiers absorbed into the Wehrmacht were enthusiastic, efficient and dependable members of the German armed forces. The article concludes that, at least for the early German campaigns in Poland and the West, the Austrian post-war rationalisation of participation in German military aggression was false.

Introduction

Allied accounts of the battle of Narvik refer to the enemy as 'German'. But the elements of the *Wehrmacht* opposing the Norwegian, British, French, and Polish forces were Austrians of the 139 Mountain Jäger Regiment of 3 Mountain Division. The role of Austrians serving in the *Wehrmacht* in the course of the Second World War remains unsettled. After the war, Austrian former members of the *Wehrmacht* presented themselves as unwilling participants in German military aggression.[1] Alternatively, even if they had been willing participants, they characterised their service as a martyr-like

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[1]Thomas R Grischany, 'Mental Aspects of Austrian Wehrmacht Service' in Günter Bischof Fritz Plasser and Barbara Stelz-Marx (eds) *New Perspectives on Austrians and World War II,* (New York: Routledge, 2009), pp. 45-61.

sacrifice in the anti-Communist cause for the "preservation of western cultural inheritance" against the "onslaught" from the East.[2]

There were two competing, but related, narratives of Austrians as '*opfer'* following the Second World War, deriving from the dual meaning of *opfer* as 'victim' and 'sacrifice'.[3] When, on 27 April 1945, the provisional government led by Karl Renner proclaimed the establishment of the Second Republic of Austria, it relied on the Moscow Declaration of 30 October 1943, in which the Allies sought to encourage Austrian resistance by exploiting an imagined 'anti-Prussian' sentiment and identifying Austria as the first free country to fall a victim to Hitlerite aggression, to assert that Austria was Nazi Germany's first victim and that Nazism was a German tyranny against which Austrian patriots fought and died.[4] The resulting myth of Austria as a victim was the principal political tool with which the Second Republic distanced itself from the National Socialist project.[5] The victim myth was effective in constructing a new democratic political identity by securing a rapprochement between the mainstream parties of the right and left, solving the immediate problem of reparations to victims,

[2]Matthew Paul Berg, 'Challenging Political Culture in Postwar Austria: Veterans' Associations, Identity and the Problem of Contemporary History' *Central European History* 30, 4 (1997), pp. 513-544.

[3]Peter Pirker 'The Victim Myth Revisited: The politics of history in Austria up until the Waldheim Affair' in Günter Bischof, Marc Landry, Christian Karner (eds) *Myths in Austrian History: Construction and Deconstruction,* (New Orleans: University of New Orleans Press, 2020), pp. 153-174.

[4]Michael Schweitzer, 'Die Folgen des Zweiten Weltkrieges,' *Archive des Völkerrechts* 23, 1/2 (1985): pp. 132–133; Peter Berger, "Myths in Recent Austrian History" in Günter Bischof, Marc Landry, Christian Karner (eds) *Myths in Austrian History: Construction and Deconstruction National Mythologies,* (New Orleans: University of New Orleans Press 2020), pp. 43-67. Heidemarie Uhl 'Das erste Opfer: Der österreichische Opfermythos and seine Transformationen in der Zweiten Republik' *ÖZP,* 30 (2001), pp. 19-34; Sonja Niederacher, 'The Myth of Austria as Nazi Victim, the Emigrants and the Discipline of Exile Studies,' in Judith Beniston and Robert Vilain (eds) *Hitler's First Victim? Memory and Representation in Post-War Austria*, special issue, *Austrian Studies* 11 (2003): 14–32 pp. 18-19; Ernst Hanisch, 'Von der Opfererzählung zum schnellen Moralisieren. Interpretationen des Nationalsozialismus in Österreich' *Geschichte und Gesellschaft* 31, 2 (April–June 2005), pp. 255-265.

[5]Jakob Engel and Ruth Wodak, 'Calculated Ambivalence and Holocaust Denial in Austria,' in Ruth Wodak and John E. Richardson (eds) *Analysing Fascist Discourse: European Fascism in Talk and Text*, (London: Routledge, 2013), p. 73; Anthony Bushell, *Polemical Austria: The Rhetorics of National Identity: From Empire to Second Republic,* (Cardiff: University of Wales Press, 2013), p. 20; Katrin Hammerstein, *Gemeinsame Vergangenheit-getrennte Erinnerung?,* (Göttingen: Wallstein, 2017), pp. 58-59.

and serving as the basis of a coherent foreign policy in dealing with the Allied occupying powers and the emerging West Germany.[6]

The competing narrative of veterans of the resistance and of the *Wehrmacht* was that they were not 'victims' but had made heroic 'sacrifices' for the benefit of Austria.[7] The true extent of Austrian resistance during the war is doubtful. With the exception of Communists, ethnic Slovenes and a few outstandingly brave individuals who resisted out of religious faith, the idea of resistance was mainly a post-war phenomenon, one American report commenting that claims of resistance were 'largely fictitious' and that it was 'increasingly difficult to determine the small number of true underground fighters among the swarms of fakes and opportunists now appearing in that pose'.[8]

However, compulsory service in the *Wehrmacht* had been very real. Approximately 1.2 million Austrian men had been inducted into the German armed forces, of whom approximately 250,000 did not survive.[9] Evidence suggests that those who did survive remained mainly loyal to the German cause until the end of the war.[10] A comparison of desertion rates between Austrian and ethnic German members of the *Wehrmacht* – from Alsace Lorraine, Luxembourg and Poland – indicates that the higher rates of desertion by ethnic Germans were not shared by Austrians and, whereas German military commanders considered ethnic German troops as unreliable, this concern did not extend to Austrian troops.[11] The grimmest statistic supporting the fidelity of Austrian servicemen to Greater Germany is that the absolute number of Austrian military casualties came close to that of Great Britain and was more than half that of

[6]Simon Blount, 'The Victim Myth: The Reinvention of Austria in the Post-War years'. *Austrian Studies* 55, 3 (2022), pp. 61-75; Matthias Pape, 'Die völkerrechtlichen und historischen Argumente bei der Abgrenzung Österreichs von Deutschland nach 1945' *Der Staat* 37 2 (1998), pp. 287–313.

[7]A discussion of the contradiction inherent in resistance associations which represented those who fought against the Nazi regime, and Wehrmacht associations which represented those who fought for it, both claiming to have made the true sacrifice, is beyond the scope pf this paper. But see Pirker 'The Victim Myth Revisited' pp.167-169.

[8]Oliver Rathkolb, *Gesellschaft und Politik am Beginn der Zweiten Republik: Vertrauliche Berichte der US-Militäradministration aus Österreich in englischer Originalfassung,* (Vienna: Bölau, 1985), p.187 citing report of Edward B. Howard, 15 October 1945, National Archives, RG 59, 740.0019 Control (Austria)/10-101545.

[9]Peter Thaler, 'National History-National Imagery: The Role of History in Postwar Austrian Nation Building' *Central European History* 32, 3 (1999), *pp.* 277-309.

[10]Grischany, 'Mental aspects', p. 57.

[11]Thaler, 'National History', pp. 304-305.

the United States, even though Britain and the United States had populations many times greater than Austria.[12]

The narrative of veterans of the *Wehrmacht* having sacrificed themselves in defence of Austria was expressed in a culture of remembrance in which the battle of Narvik was celebrated as a feat of Austrian arms. This was not without controversy. In 1960 a gathering of ex-members of 139 Mountain Jäger Regiment was addressed by Anton Holzinger, a former Jäger officer who had served in Norway and had since become an Oberst in the newly reconstituted *Bundesheer*. Critics questioned why the invasion of a peaceful country in support of Hitler should be celebrated at all and why, in his remarks, Holzinger, a serving member of the armed forces of a constitutionally neutral country, should have regretted that the regiment did not play a larger part in the earlier invasion of Poland.[13]

The narrative of heroic military sacrifice in defence of Austria articulated by ex-members of the *Wehrmacht* had become domestically convenient following the end of the Allied occupation.[14] The narrative smoothed the reintegration of a large number of ex-*Wehrmacht* soldiers into the body politic.[15] But it was problematic because it was at odds with the Second Republic's founding narrative that Germany was the sole aggressor and it may even have contained within it the seeds of an "afterlife of National Socialism in Austria Democracy.[16] The recent resurgence of the Austrian Freedom Party as a lightning rod for Austrians disaffected from mainstream European institutions may be a consequence of the party instrumentalizing the victim myth of military sacrifice by imagining contemporary Austria as resisting an unprecedented 'invasion' of non-Western refugees and immigrants pressing into Europe.[17]

This article analyses the land campaign at Narvik from the point of view of the Austrian troops of 3 Mountain Division, relying on German language sources. The earliest account, *Die 3 Gebirgs-Division 1939-1945* published in 1958, was written by Paul Klatt,

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[12]Thaler, 'National History', p. 306.

[13]Walter Hacker, 'Sollen Österreicher Hitler's Sieg über Norwegen feiern' and 'Es geht um das Ansehen Österreichs' in Walter Hacker (ed) *Warnung an Österreich: Neonazismus Die Vergangenheit bedroht die Zukunft,* (Wien: Europa Verlag, 1966), pp. 85-92.

[14]Pirker, 'The Victim Myth Revisited', p. 167.

[15]David Art *Politics of the Nazi Past in Germany and Austria,* (Cambridge: Cambridge University Press, 2006) p. 43, p. 108 & p. 109; Hammerstein *Gemeinsame Vergangenheit*, p. 64.

[16]Pirker, 'The Victim Myth Revisited', p. 169.

[17]Günther Lanier, "Populist Fascism in Austria," *Economic and Political Weekly* 35, 11 (2000), pp. 888-890. Pirker, 'The Victim Myth Revisited', p. 153.

a former *Generalleutnant* and the last commander of 3 Mountain Division.[18] Klatt surrendered the division in the last days of the war near Prague and was not released from Soviet captivity until 1955. Karl Ruef's *Odyssee einer Gebirgsdivision: Die 3 Gebirgsdivision im Einsatz* was published in 1976.[19] Ruef served as a Major in 6 Mountain Division in Norway and Finland and went on to serve in the reconstituted *Bundesheer* of the Second Republic. He published a number of books on the subject of Austrian mountain troops during the Second World War. Klatt and Ruef were both highly decorated officers who had no interest in accentuating anything negative in their own conduct, or the conduct of the *Jägers* with whom they fought. The histories they published furthered the culture of remembrance – to honour the fallen, vindicate the returned, and gloss over participation in war crimes.[20]

Walter A Schwarz's *Generalmajor a D Alois Windisch: Ein Soldatenleben,* an account of one of the key regimental commanders at Narvik, is in the same tradition.[21] Schwarz was a Warrant Officer in the Austrian *Bundesheer* and in 2006 was given the title of Professor for his work as a military historian shortly before his retirement. Schwarz is mainly interested in the award of military decorations for bravery. Although there were protests in the immediate post-war years against the display of '*Hitlerorden*', even with the swastika removed, on the basis that an award for bravery could not be divorced from the hand that awarded it, this does not appear to be the accepted view today. Schwarz's description of Windisch's command of I and III battalions of the 139 Regiment is detailed but there is no doubt that he too is not interested in the negative aspects of service in the *Wehrmacht*.[22] It may be for this reason that this book has been found by the Austrian Ministry of Defence not to meet academic standards.[23]

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[18]Paul Klatt, *Die 3 Gebirgs-Division 1939-1945,* (Bad Neuheim: Verlag Hans-Henning Podzun, 1958).

[19]Karl Ruef, *Odyssee einer Gebirgesdivision: Die 3 Gebirgsdivision im Einsatz,* (Graz Leopold: Stocker Verlag, 1976).

[20]Roland Kaltenegger a "master of the art of omission" has also written a number of accounts of Austrian Alpine troops which are not drawn on in this article. An example of an attempt to recount the realities of the wartime service of I Gebirgsdivision is Frank Hermann Meyer's *Blutiges Edelweiss: Die 1. Gebirgs-Division im Zweiten Weltkrieg,* (Berlin: Ch. Links Verlag, 2008).

[21]Walter A Schwarz, *Generalmajor a D Alois Windisch: Ein Soldatenleben (1892-1958),* (Vienna: Österreichische gesellschaft für Ordenskuende, 1996).

[22]Anton Fellner 'Die Höllenhunde sind noch viel zu nahe' in Walter Hacker (ed) *Warnung an Österreich: Neonazismus Die Vergangenheit bedroht die Zukunft,* (Wien: Europa Verlag, 1966), pp. 73-75.

[23]See http://www.*Bundesheer*.at/download_archiv/pdfs/hgm_shop_rohbericht.pdf Accessed 29 January 2023.

Nevertheless, the advantage of these sources is that they are technically detailed and, even though Klatt was German, they give an Austrian account of the land campaign at Narvik that until now has not been available to English speakers. The account is at odds with the post-war narratives of Austrian military unwillingness and anti-Bolshevism. The courage, resilience and determination of the *Jägers* at Narvik is instead consistent with a conclusion that Austrian officers and soldiers absorbed into the *Wehrmacht*, at least at the beginning of the Second World War, were enthusiastic, efficient and dependable members of the German armed forces. Further, at the time of the invasion of Narvik the German war aim was plainly strategic, not ideological. Although Austrian troops later invaded the Soviet Union over its extreme northern border with Norway as part of Operation *Barbarossa*, this did not occur until a year after the Narvik campaign had ended.

The Third Mountain Division & Operation Weserübung

Following the Anschluss the absorption of the Austrian *Bundesheer* by the *Wehrmacht* had gone relatively smoothly.[24] Although about 400 Austrian officers had not been accepted for service with the *Wehrmacht*, and many officers who had been dismissed under the former *Standestaat* regime for their Nazi sympathies had returned, the great majority of *Bundesheer* officers accepted for duty in the *Wehrmacht* went willingly, attracted by prospects of better pay, social status and opportunities for promotion in a much larger army.[25] For enlisted soldiers too, there was the appeal of adventure and travel beyond Austria to the greater Reich and beyond.[26]

The new Austrian *Wehrmacht* units were mainly created out of existing *Bundesheer* formations.[27] The *Wehrmacht* let Austrian units remain loyal to their own military traditions, as long as they were efficient and accepted the Prussian military system.[28] The 139 Mountain Jäger Regiment was a part of 3 Mountain Division formed in Graz out of 4 and 7 Divisions of the defunct *Bundesheer*. The Division's principal fighting units comprised the 138 Mountain *Jäger* Regiment garrisoned in Styria, the 139 Mountain Jäger Regiment garrisoned in Carinthia, and the 112 Mountain Artillery Regiment, the twelfth Reconnaissance Battalion and the forty eighth *PanzerJäger* Battalion, all made up of men drawn from the forests and mountains of southern Austria. 3 Mountain Division was under the overall command of a laconic German and

[24]Grischany, 'Mental Aspects', p. 46.
[25]Richard Germann, 'Austrian Soldiers and Generals in World War II' in Günter Bischof, Fritz Plasser and Barbara Stelz-Marx *New Perspectives on Austrians and World War II,* (New York: Routledge, 2009) pp. 29-44.
[26]Grischany, 'Mental Aspects', p. 47.
[27]Germann, 'Austrian Soldiers', p. 30.
[28]Grischany, 'Mental Aspects', p. 49.

convinced National Socialist, *Generalmajor* Eduard Dietl. However, Dietl's immediate subordinates were Austrian.

The commander of the 139 Regiment, *Oberst* Alois Windisch, exemplified the background and qualities of serving non-political *Bundesheer* officers inducted into the *Wehrmacht*. Windisch had served as a battalion adjutant and later company commander on the Italian Front in the First World War. Wounded three times, he had been awarded Austria-Hungary's highest decoration for valour. Following the war, he was promoted to Colonel of the General Staff, teaching tactics to senior officers at the Military Academy in Wiener Neustadt. After the annexation, the *Wehrmacht* regarded him as unreliable and did not appoint him to the General Staff. However, on the outbreak of war he was given field command of 139 Regiment. Windisch was keenly intelligent and known for his clear thinking and precise, logical orders. He was a disciplinarian but ensured the proper treatment of his troops. Like many former *Bundesheer* officers, he never felt truly at home in the *Wehrmacht*. An example of his ambivalence was that he addressed his German subordinates with the formal 'you' (Sie) but his Austrian subordinates with the informal 'thou' (Du).[29]

Following action in the Polish campaign, 3 Mountain Division was tasked to take part in Operation *Weserübung*, the invasion of Denmark and Norway. This was the first combined operation of the *Wehrmacht*, *Kriegsmarine* and *Luftwaffe* in which the *Kriegsmarine* was to transport *Wehrmacht* troops directly into battle, running the risk of enormous loss in the event of a battle at sea, but the benefit of complete surprise if the ships made landfall.[30] 3 Mountain Division, comprising 139 Regiment, reinforced by I Battery of 112 Artillery Regiment and 12 Reconnaissance Battalion, was to seize and occupy the ice-free port of Narvik and secure the strategically important export route to Germany for iron ore mined in Sweden. The proposed operation was audacious.

> Never before had a similar operation plan been worked out by High Command, General Staff Officers and the Navy dealing with the transport of land forces by warships over 2000 kilometres of seas dominated by a superior enemy fleet. Before them, landing and fighting approximately 150 kilometres north of the Arctic Circle on wintery cliffs completely unknown to us and not previously been reconnoitred.[31]

On 6 April 1940, 2,000 men of the reinforced 139 Regiment boarded ten modern destroyers of the 1st Flotilla at Bremerhaven in northern Germany. Units of 138

[29]Schwarz, *Ein Soldatenleben*, pp. 85 - 86.
[30]Klatt, *Die 3 Gebirgs-Division*, p. 49.
[31] Klatt, *Die 3 Gebirgs-Division,* p. 48. Translation by the author.

Regiment bound for Trondheim 900 kilometres to the south of Narvik, boarded ships of the 2nd Flotilla, consisting of the heavy cruiser *Admiral Hipper* and another four destroyers. The two flotillas rendezvoused with the battle cruisers *Gneisenau* and *Scharnhorst* and sailed north. The weather was atrocious, the destroyers rolled in arcs of up to 50 degrees and the artillery of 112 Regiment was washed overboard, as were ten men, most of them *Jägers,* who could not be rescued.[32] Other *Jägers* were badly injured, breaking arms and legs and suffering gashes from being thrown about the ships. Most *Jägers*, many of whom had never even seen the ocean before, were violently seasick, some lacking the strength to make their way to the heads but throwing up where they sat. In the early morning of 9 April, after a voyage of two days in violent seas and long hours of dangerous daylight the 1st Flotilla reached the entrance to the *Ofotfjord*, the waterway leading east to Narvik, in weather of alternating heavy sleet and snowstorms.

The destroyer *Giese* had been unable to keep up, so *Kommodore* Bonte in command of 1st Flotilla split the destroyers into three squadrons, each of three ships. The first squadron was to deal with land fortifications at the entrance to the Ofotfjord and deny use of the fjord to enemy shipping.[33] *Gebirg* Companies 1 and 6 were tasked with taking the coastal batteries at Ramnes to the north and Havnnes to the south of the Ofotfjord by *coup de main*. Still seasick after the North Sea crossing, the *Jägers* landed from small boats and marched in full battle readiness through the snow. However, the batteries did not exist because they had never been constructed.[34] Although the *Jägers* were spared inevitable casualties taking the non-existent batteries, they now had no means of denying the Ofotfjord to British warships, which would have disastrous consequences.

The second squadron carrying III Battalion of the 139 Regiment under the direct command of Windisch, seized and occupied the Norwegian military supply base at Elvegardsmoen, just outside of Bjerkvik on the Herjangsfjord, 10 kilometres to the north of Narvik.[35] Because Major General Fleischer, commanding the Norwegian forces in the north, had ordered the battalion garrisoning Elvegardsmoen under Major Spjeldnes south to reinforce Narvik's defences and the relieving Norwegian troops had been delayed by heavy snow, Windisch's *Jägers* met no resistance.

[32]Geirr H Haarr, *The German Invasion of Norway,* (Annapolis: Naval Institute Press, 2009), p. 33. Although Klatt states that at least one man was rescued: Klatt, *Die 3 Gebirgs-Division*, p. 51.
[33]Haarr, *Invasion of Norway*, p. 323.
[34]Haarr, *Invasion of Norway*, p. 330.
[35]Haarr, *Invasion of Norway*, p. 323.

The last squadron, carrying Dietl and his staff, made for Narvik itself. The Norwegian coastal defence ships, *Eidsvold* and *Norge* refused to surrender and Bonte, at the ruthless insistence of Dietl, torpedoed and blew up the *Eidsfold* even though she had not fired a shot, before sinking the *Norge* and disembarking the *Jägers* to occupy Narvik.[36] Colonel Sundlo had been warned of a possible German movement against the town and had the advantage of defending mountainous terrain with narrow passes and few roads with local knowledge of the conditions.[37] He also had the support of the additional Norwegian troops heading south from Elvegardsmoen under Major Spjeldnes.[38] But Sundlo was sympathetic to the Norwegian traitor Vidkun Quisling and had made only minimal preparations to defend the town.[39] The *Jägers* caught the Norwegians in confusion and disarmed many of them as they belatedly made their way to defensive positions. Sundlo then caved into Dietl and surrendered the town.[40] On hearing of the surrender, Fleischer relieved Sundlo and appointed Major Omdal in his place. Ignoring the surrender terms, Omdal and Spjeldnes then marched 200 men out of Narvik into a snowstorm, 'saluting the German officer of the guard' and were quickly lost to sight.[41]

The land invasion had gone to plan.[42] The only loss to the invaders was the German merchant ship *Bockenheim,* one of 11 merchant ships lying in Narvik harbour at the time. On seeing the approaching destroyers, the *Bockenheim's* captain had assumed they were British and ordered her to be set on fire and scuttled. However, the sea operation went awry, leaving the *Jägers* horribly exposed. Only two destroyers could be refuelled at a time because only one of the three tankers planned for the operation, the *Wellem,* was at hand. This meant that days were needed to refuel the entire Flotilla, time which it did not have.[43] At 4.30am on the morning after the invasion, the 2nd Destroyer Flotilla of the Royal Navy comprising five destroyers under Commodore Warburton-Lee attacked during a severe snowstorm, achieving surprise because the German picket ship, *Roeder* had withdrawn from her position to refuel and had not been relieved.[44] Warburton-Lee's flotilla sank two German destroyers and heavily damaged the *Roeder* for no loss. Warburton-Lee's luck ran out when the three German destroyers of the Herangsfjord group, responsible for landing Windisch and 1 Battalion at Elvesgardmoen, re-emerged into the Ofotfjord and combined with

[36]Haarr, *Invasion of Norway*, p. 325.
[37]Ruef, *Odyssee* p. 77.
[38]Ibid.
[39]Haarr, *Invasion of Norway*, p. 321.
[40]Klatt, *Die 3 Gebirgs-Division*, p. 52.
[41]Haarr, *Invasion of Norway*, p. 330.
[42]Schwarz, *Ein Soldatenleben*, p. 114.
[43]Haarr, *Invasion of Norway*, p. 334; Klatt, *Die 3 Gebirgs-Division*, pp. 53-54
[44]Haarr, *Invasion of Norway*, p. 339.

two more German destroyers to give battle. Two British destroyers, including Warburton-Lee's flagship, were lost and a third, *HMS Hotspur*, was badly damaged by a torpedo. *Hotspur* and the remaining British destroyers withdrew, destroying a German supply ship carrying anti-aircraft guns, artillery, and other heavy weapons intended for 139 Regiment as they went.[45]

The German flotilla, now under the command of *Fregattenkapitän* Bey following the loss of Bonte along with his flagship *Heidekamp*, was badly damaged, and virtually immobilised because of a shortage of fuel, and further weakened when two of its remaining destroyers ran aground while manoeuvring in Narvik harbour. On 13 April a second Royal Navy Battle Group comprising the battleship *HMS Warspite* and nine destroyers, with aircraft from *HMS Furious* under Vice Admiral William Whitworth, attacked and sank a further three German destroyers for only minor loss. The remaining German ships were scuttled when their fuel and ammunition ran out. At least one German language source states that the Royal Navy machine gunned *Kriegsmarine* sailors in the water.[46]

The Position of 139 Regiment

The loss of the entire German flotilla was a disaster for the Kriegsmarine and left the 2000 men of 139 Regiment isolated in severe weather conditions with their nearest support some 900 kilometres to the south in Trondheim. The absence of gun emplacements at Ramnes and Havness allowed ships of the Allied navies to come and go in the Ofot- Herjangs- Rombaks- and Beis- fiords at will, and none of the German supply ships arrived. The planned seizure of the airstrip at Bardufoss north of Bjerkvik for re-supply never happened and it remained in Norwegian hands.[47] Without resupply, the regiment was short of artillery, heavy mortars and radio sets. As well, despite being mountain troops, they had inadequate clothing and ski equipment for the conditions.[48] Dietl summed up the position:

> Up there in the mountains there are no houses, no fuel, no hospitals, no power, no warmth, no roads, no communications with the South. If I hold, we will suffer heavy losses, if I don't hold, the German people will suffer a shock.[49]

The position appeared so hopeless that on 15 April the Narvik front was temporarily placed under the direct command of the German High Command. Three days later Adolf Hitler, foreshadowing his later handling of Generals caught in desperate

[45]Haarr, *Invasion of Norway*, p. 348.
[46]Schwarz, *Ein Soldatenleben*, p. 121.
[47]Klatt, *Die 3 Gebirgs-Division*, p. 53.
[48]Ruef, *Odyssee*, p. 85.
[49]Cited in, Ruef, *Odyssee*, p. 80. Translation by the author.

positions in Russia, promoted Dietl to *Generalleutnant* and informed him that he would receive no reinforcements. Nevertheless, showing somewhat more flexibility than he would later in the war, Hitler also gave permission for Dietl to withdraw his men into internment in Sweden rather than suffer a significant defeat.[50] In preparation for this eventuality, the regiment began to demolish the Narvik harbour facilities and the iron ore export infrastructure.[51]

However, the *Jägers* also enjoyed unexpected advantages. Firstly, following the destruction of the German flotilla, the Allies failed to land ground forces immediately and retake Narvik. The British in particular suffered from divided command. The Royal Navy had urged immediate action, but the army baulked at the inevitable civilian casualties that would result from a naval bombardment of the town preceding its re-capture. Consequently, the regiment had time to secure Narvik's defences. Secondly, the regiment was now supplemented by an improvised unit made up of some 2,900 surviving Kriegsmarine sailors who had lost their ships. These men were armed and equipped from the military supply depot captured at Elvegardsmoen and were put to use securing the harbour and the strategically important west-east iron ore railway.[52] They also brought the bulk of the supplies from Elvegardesmoen south along the coast road to Narvik under constant threat of naval bombardment by allied ships.[53] Thirdly, the regiment managed to salvage 20mm machine guns and 3.7cm anti-aircraft guns and radio equipment from some of the lost destroyers. Dietl also organised the transport by air of the 7.5 cm guns and ammunition of II Battery of 112 Regiment to a makeshift landing site within the perimeter established by Windisch three kilometres north of Elvegardsmoen. Two of the guns were sent south and mounted onto railway cars running along the iron ore railway, while the remaining two remained with Windisch and were sited in Bjerkvik.[54] Nevertheless, the guns were delivered at heavy cost. All of the *Ju-52* transport planes were lost, either because they had crashed on landing, or because they were unable to take off and sank through the melting spring ice into the sea.[55] Fourthly, during the course of the campaign, Dietl had the advantage of increasing air support as the German position in Trondheim improved and the Luftwaffe was able to divert more resources to the battle of Narvik. One of the consequences of improved command of the air was that Dietl could bring in heavy equipment by flying boat. He was also able to receive about 900 more men, many arriving by parachute, bringing the total number of effectives to around 5,600 men.

[50]The order is extracted in Klatt *Die 3 Gebirgs-Division*, p. 58.
[51]Haarr, *Invasion of Norway*, p. 195.
[52]Haarr, *Invasion of Norway*, p. 192.
[53]Schwarz, *Ein Soldatenleben*, p. 122.
[54]Haarr, *Invasion of Norway*, pp. 195-196. Klatt states just two guns were landed: Klatt *Die 3 Gebirgs-Division* p. 57.
[55]Schwarz, *Ein Soldatenleben*, p. 122; Klatt, *Die 3 Gebirgs-Division*, p. 54.

Although relatively few, the quality of the parachute troops was high, consisting of men of I Battalion of the Parachute *Jäger* Regiment as well as men of the 137 Mountain *Jäger* Regiment of 2 Mountain Division and men of the 138 Regiment. Astoundingly, many of the *Jägers* of 137 and 138 Regiments jumped after only 10 days of parachute training.[56] Finally, 139 Regiment took advantage of its proximity to the Swedish frontier to bring in 290 specialists posing as health care workers, and to send its wounded into the safety of internment.

Tactically, 139 Regiment was engaged north and south of the Rombaksfjord and along the west-east line of the iron ore railway. To the north, I and III Battalions, and sailors led by *Fregattenkapitän* Kothe of the *Hermann,* under the overall command of Windisch fought in and around Bjerkvik falling back south-eastward as they came under increasing Norwegian pressure from the north. South of the Rombaksfjord, II Battalion under Major Haussells occupied the town of Narvik, as well as Ankenes south of the Beisfjord, falling back eastwards.[57] The occupation of Narvik was hard. 139 Regiment used the civilians as a shield against bombardment from the Royal Navy and denied civilian evacuation under threat of reprisals against the mayor and other prominent persons. By the end of April there were still 5000 civilians in the town living under increasingly difficult conditions.[58] Along the iron ore railway the balance of the *Kriegsmarine* units remedied the failure of the line's electrification by bringing an old steam locomotive into action, providing a quick means of transporting men and supplies along the entire west-east defensive line, and providing a mobile artillery platform against allied shipping on the Rombaksfjord.[59]

The Land Campaign

The day after the destruction of the German destroyer force, the Royal Navy set up a base of operations at the port of Harstad, northwest of Narvik. The British landed 24 Guards Brigade consisting of the Scots and Irish Guards and the South Wales Borderers, strongly reinforced by artillery, anti-aircraft guns and signals and engineer companies, as well as five 'independent companies' specializing in irregular warfare. On 27 April, three battalions of French Mountain *Chasseurs* arrived, and two battalions of the French Foreign Legion arrived on 6 May. On 9 May four battalions of Polish infantry also landed at Harstad. The total number of Norwegian and allied troops was approximately 24,000 men.

But the number of allied troops arrayed against the *Jägers* does not tell the whole story. The Norwegians were still inexperienced, and the British troops, consisting of

[56]Schwarz, *Ein Soldatenleben*, p. 133.
[57]Haarr, *Invasion of Norway* p. 194.
[58]Haarr, *Invasion of Norway* p. 229.
[59]Klatt, *Die 3 Gebirgs-Division*, p. 59.

'men with bare knees blowing bagpipes rather than soldiers equipped to fight in snow', appeared somewhat amateurish.[60] The French *Chasseurs* were poorly equipped and trained, and the foreign legionnaires, raised in North Africa, had no experience of winter warfare.[61] The Polish troops had no understanding of the mountains, but at least had experienced officers who had fought German forces in Poland. [62]

The Norwegians in particular were initially no match for the professionalism of the *Jägers*. On the night of 16 April, the *Jägers* had surprised and defeated the Norwegian troops under Major Omdal who had escaped from Narvik along the iron ore railroad and were blocking the route to Sweden at the partially destroyed Norddal Bridge near Bjoernfell.[63] The Norwegians were also badly beaten at Gratangsbotn to the north of Bjerkvik. On 24 April, I and II Battalions of the Norwegian 15 Infantry Regiment, with an independent unit comprised of Norwegians, Sami and Kvens from the north of Norway in reserve, had attacked south in heavy snow in the direction of Elvegardsmoen. The attack failed because of the bad weather and strong resistance from 139 Regiment's I Battalion, but Windisch came to the conclusion that his position was too exposed and ordered a withdrawal. The withdrawal of the *Jägers* from the village of Gratangsbotn went unnoticed in the bad weather and the inexperienced Norwegians were surprised to find it clear of the enemy. Exhausted after a forced march, the Norwegians rested in the farmhouses and barns without posting sufficient perimeter security. Major Stautner, in command of I Battalion did not miss the opportunity and, in an action for which he would later be awarded the Knights Cross, immediately counter attacked with 165 *Jägers*. In house-to-house fighting, 34 Norwegians were killed, 64 wounded and 130 taken prisoner. Norwegian officer losses were especially heavy with three out of five company commanders among those killed. The *Jägers* suffered only six killed, 16 wounded and three missing.[64] Nevertheless, the inexperience of the Norwegians did not last long. Fleischer later wrote, 'our units suffered much, but they became tough and … learned how to take care of themselves. They became units that could be used in war'.[65] The Norwegians were well equipped to fight in the snow, and the *Jägers* themselves came to consider that the Norwegian 'peace soldiers' had adapted to the war in a very short time and had become a dangerous opponent, probably becoming more effective than any of the other allied forces.[66]

[60]Haarr, *Invasion of Norway*, p. 202.
[61]Haarr, *Invasion of Norway*, p. 237-238.
[62]Haarr, *Invasion of Norway*, p. 238.
[63]Haarr, *Invasion of Norway*, pp. 239-240; Klatt, *Die 3 Gebirgs-Division*, p. 55.
[64]Klatt, *Die 3 Gebirgs-Division*, p. 59.
[65]Cited in Haarr, *Invasion of Norway*, p. 241.
[66]Haarr, *Invasion of Norway*, p. 222.

Following Norddal Bridge and Gratangsbotn, the land campaign turned against the *Jägers* as allied seapower continued to play a decisive role. The *Kriegsmarine* sailors on the iron ore railway line running along the south shore of the Rombaksfjord came under constant naval gunfire. A Polish destroyer, *Grom*, became adept at machine gunning and shelling the rail line, until she herself was bombed and sunk with heavy loss of life by a Heinkel 111. North of the Rombaksfjord intense shelling by the Royal Navy from the Herjangsfjord forced Windisch to abandon his command post at Elvegardsmoen and withdraw south to the Hartvig sea, and in early May, two Norwegian brigades, reinforced by French Alpine Chasseurs again pushed south against Windisch's northern perimeter, forcing him to continue falling back.[67]

On 12-13 May, the Allies launched an amphibious attack on Bjerkvik in conditions of snow, rain and storm. The preceding naval bombardment had killed 18 civilians, and largely destroyed the town, as well as destroying a supply depot containing 2,000 rations.[68] French Foreign Legionnaires supported by five light tanks took Bjerkvik and the Elvegardsmoen depot before advancing northeast as well as south towards Narvik along the east shore of the Herjangsfjord. The poorly armed sailors defending Bjerkvik, untrained and unprepared for the ferocity of the assault, did not resist and pulled back, abandoning their heavy equipment and were then unfit to fight for the remainder of the campaign.[69] Windisch's force was now in acute danger of encirclement from the north and west, forcing him to leave his defensive positions on the Hartvig sea heights and fall back southeast in the direction of Dietl's command post at Bjoernfell near the Swedish frontier. But to achieve this, Windisch had to first hold the Allied advance long enough to secure the Gramberg bridge over the Vasdalen river, which was in full spring flood to the rear of the retreating *Jägers*.

The *Jägers* falling back from Bjerkvik experienced the worst of the weather conditions. One soldier described the Sisyphean labour of shovelling snow to keep the road from Elvegardsmoen to Narvik open in a snowstorm, while barely managing to stand upright in the howling wind with icy snow whipping into the face, all for no purpose, as a few meters behind him the cleared road again became impassable.[70] On retreat, Windisch's *Jägers* continued to suffer in awful conditions of fog, rain and cuttingly cold winds. They fought and slept in the melting snow and were constantly wet and exhausted, '… we carry packs weapons and ammunition over long stretches of melting snow often stuck up to our haunches in the watery slush.'[71]

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[67]Klatt *Die 3 Gebirgs-Division*, pp. 59-60.
[68]Klatt *Die 3 Gebirgs-Division*, p. 61.
[69]Ibid.
[70]Ruef, *Odyssee*, p. 85.
[71]Diary entry cited in Ruef, *Odyssee,* p. 93.

Where there was no snow, the *Jägers*' rubber soled boots disintegrated on the stony desert-like ground. It was impossible to dig foxholes in the rocks and there were no explosives available to construct bunkers. There were insufficient tents to protect the *Jägers* from the wet and cold, and there was no fuel for heating or field kitchen ovens to prepare hot food and drinks.[72] It was too cold to sleep.[73] For every man wounded, one was sick due to the appalling conditions. [74] Worst of all, *Jägers* may well have died from wounds that they should have survived because of the intense cold.

The personal and professional qualities that Windisch had shown 25 years before on the Italian front were again displayed in the retreat of the northern perimeter of Narvik. He lived and slept no better than any of his *Jägers* and received the same rations. Under conditions of bitter cold, hunger, and lack of supplies, Windisch saved from annihilation the retreating I and III battalions of 139 Regiment and the *Kriegsmarine* sailors under his command. He succeeded in pulling the last of his men over the Vasdalen before blowing the bridge, at the cost of leaving behind much of his medium to heavy equipment, including the two guns of 112 Artillery Regiment. He then constructed a defensive line that could be held against the advancing allied forces and proceeded to defend every hill, every hollow and every defile, without essential equipment, such as heavy mortars and radio sets.[75] At one point, in the course of repeated assaults on Height 620 by French and Norwegian troops the *Jägers* ran out of mortar ammunition, ammunition for the machine guns and hand grenades. Nevertheless, Windisch had preserved the *Jäger's* efficiency as a fighting force and re-established a viable defence line. For this action, he was awarded the Knights Cross of the Iron Cross, becoming one of only two men to hold both Austria-Hungary's and Nazi Germany's highest awards for valour.

Despite the *Jäger's* resolve, allied sea power and troop numbers at Narvik began to tell. On 27 and 28 May, eight allied warships commenced shelling the town before troops of the French foreign legion, half of them German, and one Norwegian battalion supported by light tanks crossed south over the Rombaksfjord.[76] Although the Allies suffered heavy casualties, the immediate defence of Narvik was no longer tenable. Major Haussells' II Battalion abandoned the town and pulled eastwards along the northern shore of the Beisfjord. At the same time, two battalions of the Highland Brigade attacked Ankenes on the southern shore of the Beisfjord, defended by 7 and 8 Mountain Companies reinforced by elements of 2 Mountain Company of the 137 Mountain Jäger Regiment that had landed by parachute. The Ankenes *Jägers* withdrew

[72] Klatt, *Die 3 Gebirgs-Division*, p. 60.
[73] Ruef, *Odysee* p. 106.
[74]Ruef, *Odyssee* p. 122.
[75]Schwarz, *Ein Soldatenleben*, p. 132,133; Ruef, *Odyssee*, pp. 94, 95.
[76]Schwarz, *Ein Soldatenleben*, p. 133.

under conditions of relentless close quarter fighting for the hilltops of the stony peninsular, and at Hill 295 defended the position until their ammunition ran out. Eventually, they succeeded in crossing to the northern shore of the Beisfjord under machine gun fire to link up with the rest of II Battalion, but only at the cost of heavy casualties.[77] In abandoning Narvik and Ankenes, II Battalion became exposed to the same energy sapping conditions in the open that had been endured by I and III Battalions on the northern perimeter since the beginning of the land campaign. But the civilian inhabitants of Narvik suffered more when, on 30 May, the Luftwaffe bombed the town.

The End of the Campaign

Well before the loss of Narvik, 2 Mountain Division under *Generalmajor* Valentin Feurstein, reinforced by 138 Regiment from 3 Mountain Division, had committed to relieving 139 Regiment by an overland march from the south. The realistic prospects of breaking through to Narvik in time to prevent an Allied victory there were slight. But the attempt, known as operation *Büffel*, at least diverted British troops to a defence of the southern approaches to Narvik and secured airbases enabling the Luftwaffe to give the 139 Regiment more sustained support in the closing stages of the campaign.

Dietl now committed the last of his almost non-existent reserves, consisting of a weak company of I Battalion of the Parachute *Jäger* Regiment that had parachuted in just four days earlier, as well as a pioneer battalion, to defend against Allied attacks from the easternmost point of the Beisfjord, less than 20 kilometres west of Bjoernfell.[78] It was only a matter of time before the *Jägers*, now uniformly falling back, must either surrender, or cross the Swedish border and suffer internment. But events in France had already intervened. London, faced with the possible annihilation of British troops at Dunkirk, decided to evacuate Norway and had ordered the attack on Narvik to both disguise the retreat and allow the destruction of the harbour facilities. On 8 June, *Jäger* reconnaissance reported that allied troops had pulled out of Narvik and 139 Regiment reoccupied the town amid the debris of the Luftwaffe bombing, abandoned Allied equipment and the destruction of the harbour.[79] On the northern perimeter Norwegian troops, angry at being abandoned by their allies, fell back in an orderly retreat, and ceased hostilities on 9 June. The troops on both sides were stunned at the turn of events. The *Jägers* were the victors of Narvik, but if the battle had continued for another 24 to 48 hours, they probably would have had to surrender.

[77]Klatt, *Die 3 Gebirgs-Division*, p. 64.
[78]Klatt, *Die 3 Gebirgs-Division*, pp. 63-64.
[79]Klatt, *Die 3 Gebirgs-Division*, p. 65.

Conclusion

The German amphibious operation at Narvik was a poorly planned disaster, carried out without proper maps or reconnaissance.[80] The *Kriegsmarine* never made good its losses in destroyers and never again attempted an amphibious operation on the scale of Narvik. The Narvik campaign would have failed entirely but for the fighting qualities of the *Jägers* and the unforeseen speed with which France fell. After the campaign, the *Jägers* enjoyed considerable prestige as elite troops within the *Wehrmacht*.[81]

> The deeds of the 3 Mountain Division in and around the Norwegian seaport of Narvik during its occupation and defence in the spring of 1940 were celebrated enthusiastically by press and publications all over greater Germany, which emphasised that these units consisted almost exclusively of *Ostmärker*, [and] disproved the claims of the enemy propaganda that the Austrians only fought under coercion and … demolish[ed] … the legend of the inefficient Austrian soldier of World War I. … the common down-to-earth *ostmärkische* soldier was portrayed as tough, committed and efficient.[82]

The invasion of Narvik was not the first time Austrians had gone to war in support of German aims in the north. Soldiers from Styria had fought against Denmark in the first war of German Unification.[83] At Narvik, the courage, resilience and determination demonstrated by the *Jägers* of 139 Regiment was entirely contrary to the post-war narrative of unwilling Austrian participation in German military aggression. Some of the *Jägers* jumped into battle with only 10 days parachute training, and all endured appalling weather conditions without proper supply, fought until their ammunition ran out, and had the pride to remain an effective fighting force in the face of apparently inevitable defeat. Nor was the principal motivation anti-Bolshevik. The Narvik campaign was about strategic considerations – the control of the iron ore export route from Sweden – not racial or ideological prejudices. The *Jägers* certainly behaved callously toward the civilian population of Narvik, holding them hostage against bombardment by the Royal Navy, but no more callously than the Royal Navy itself, which obliterated Bjerkvik in support of the French landing. In war, no island power can afford a navy, and no continental power can tolerate an army, that is anything less than ruthlessly efficient.

A year after the Allies evacuated Narvik, 3 Mountain Division participated in the invasion of the Soviet Union over its extreme northern border with Norway at Kirkenes in a failed attempt to take Murmansk. From late 1942, the Division then

[80]Ruef, *Odyssee*, pp. 11 – 13.
[81]Germann, 'Austrian Soldiers', p. 33.
[82]Grischany, 'Mental Aspects', pp. 47, 48.
[83]Ruef, *Odyssee*, pp. 16-17.

fought in Russia, mainly on the southern front where it merged into the vast machinery of the *Wehrmacht* engaged in the war of annihilation against the Red Army, the Soviet peoples and Jews. In this charnel house and on the long retreat through Eastern Europe, the *Jägers* may well have begun to question their willingness to keep fighting, and to seek to justify the continuation of the slaughter as 'anti-Bolshevik'. But in the Narvik campaign, that was not yet the case.

American Prisoners & Britain's Caribbean War 1780-1783

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ABSTRACT
This Research Note illustrates the American Revolution as part of a worldwide conflict through the seldom remembered British impressment and recruitment of American prisoners of war in Charleston and New York for service in Honduras and Nicaragua. Lord Charles Greville Montagu (1741-1784) had intended to recruit from the Loyalists of the South Carolina frontier, but the American Revolutionary war had by then deteriorated into a bloody civil war. Men were recruited from the prison hulks in Charleston and New York for a Central America campaign but became the defenders of Jamaica instead, and some of them later joined the post-war Black and White American Loyalist diaspora across the British Empire.

Introduction

The United States' war for independence took place within a far greater world war that even today does not have an appropriate designation. This global conflict presented special challenges for the British Empire. France and Spain, as they joined the war, for example, expended more resources in a failed effort to capture Gibraltar than the two nations devoted to America. By 1778, First Lord of the Admiralty Lord John Montagu argued that the Royal Navy needed to be transferred from America to defend British possessions in the Caribbean and even Great Britain itself.[1]

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[1]Holger Hoock, *Scars of Independence: America's Violent Birth,* (New York: Crown, 2017), p. 309; Brendan Simms, *Three Victories and a Defeat: The Rise and Fall of the First British Empire,* (New York: Penguin, 2007), pp. 615-35; Andrew Jackson O'Shaughnessy, *The Men Who Lost America: British Leadership, the American Revolution, and the Fate of the Empire,* (New Haven, CT: Yale University Press, 2013), pp. 327-35. For more on the American Revolution as part of a global conflict see R. Ernest Dupuy, Gay Hammerman, and Grace P. Hays, *The American Revolution: A Global War,* (New York: D. Mackay, 1977) and the essays in David K. Allison and Larrie D. Ferreiro, eds., *The*

An incident in the wider conflict that has received little notice beyond that struggle is the impressment and recruitment of American prisoners of war from British prison ships that in different ways represent the greater interconnected parts of the war across the British Empire. This incident, for example, connects the often-forgotten civil war in what is now the southern United States that was fought between Americans, and British ambitions in Central America. With the entry of France (1778), Spain (1779), and the Dutch Republic (1780) into the American conflict, British leaders saw the opportunity for the capture of a valued French sugar island or a strategic Spanish province in the New World that could better connect Britain's far-flung possessions. Such a victory would more than compensate for the loss of imperial rule over the mainland colonies. Americans from the mainland backcountry could oppose the Revolution by not only restoring the southern colonies that fed the workers of the British sugar islands of the Caribbean but by supplying soldiers for conquests in Central America. This strategy could also encourage reconciliation with the rebelling Americans and might keep some or all of Britain's American colonies within the Empire with a large degree of independence, and not unlike Great Britain's modern relationship with Canada. Any sort of end to the fighting on the mainland by Loyalist Americans would also free up the British military for new imperial conquests or defence. Optimists could envision a path through the Caribbean, Central America, and the American frontier to a world-wide victory for the British Empire.[2] The British, however, had a history of failure in such adventures, as with the partisan resistance in Cuba and the Philippines in the 1760s.[3]

Secretary for the Colonies Lord George Germain promoted such bold, if impractical schemes, and unintentionally aided the American rebels by ordering under-resourced campaigns to implement these ideas at the cost of spreading thin Britain's limited military resources, such as various misinformed schemes to create a counter-revolution by recruiting Americans. He, for example, encouraged Governor of Jamaica

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American Revolution: A World War, (Washington, DC: Smithsonian Books, 2022). For Gibraltar see Roy and Leslie Adkins, *Gibraltar: The Greatest Siege in British History* (New York: Harper Perennial, 2017).

[2]Andrew Jackson O'Shaughnessy, *An Empire Divided: The American Revolution and the British Caribbean,* (Philadelphia: University of Pennsylvania Press, 2000), pp. 52-53; Peggy K. Liss, *Atlantic Empires: The Network of Trade and Revolution, 1713-1826,* (Baltimore, MD: John Hopkins University Press, 1983), pp. 26-47.

[3]For British failure in Cuba and in the Philippines see Elena A. Schneider, *The Occupation of Havana: War, Trade, and Slavery in the Atlantic World,* (Chapel Hill: University of North Carolina Press, 2018) and Shirley Fish, *When Britain Ruled the Philippines, 1762-1764: The Story of the 18th Century British Invasion of the Philippines during the Seven Years War* (Bloomington, IN: AuthorHouse, 2003).

and Major General John Dalling (1731-1798) who saw Spain's entry into the war as an ally of France as such an opportunity. Dalling had served the empire in campaigns from Canada to Cuba. In January 1780, he used the British settlements in Honduras as a base from which to launch an invasion of the Mosquito Coast of Spanish Honduras and Nicaragua to seize that province as it bridged the Atlantic and Pacific Oceans and could divide the Spanish Empire. He captured Honduras City, but disease then decimated his troops. Spanish Governor Matís de Gálvez, father of the later famous Spanish General Bernardo de Gálvez, proved a capable opponent. The British military, including a young Horatio Nelson, had to contend with determined resistance by Spanish forces from the interior of Nicaragua and Honduras. Nelson and most of the expedition became seriously ill. Overall, the campaign cost Dalling as many as 1,400 regulars, settlers, and native allies, and left the defences of British West Florida and Jamaica vulnerable to attack by France and Spain.[4]

Dalling no longer had adequate numbers to defend Jamaica, and with the recruitment of British and Hessian soldiers on the decline the British military needed to exchange captured soldiers to find men to serve in its thinning ranks and fight a rapidly expanding world war. He now considered recruiting men from Charleston, South Carolina, particularly from the American Continental Army' soldiers recently captured at the surrender of that city and at the battle of Camden. In July 1780, he dispatched Captain James Bain and two other officers of the 60th Regiment, the Royal American Regiment, to South Carolina. An American privateer outside of Charleston harbour captured their ship, however, and they became prisoners of the Americans! He next sent Major William Odell of the Jamaican militia and Lord Charles Greville Montagu, a captain in the 88th Regiment, on a mission to replace the British losses in Nicaragua with Americans.[5]

Odell travelled to New York and began his recruiting in late June 1780. The guards there reportedly tried to force the prisoners to enlist by cutting off their drinking water. Their efforts, according to historian Holger Hoock, still proved disappointing

[4]O'Shaughnessy, *An Empire Divided*, pp. 52-53 and *The Men Who Lost America*, pp. 165-207; Carl P. Borick, *Relieve Us of this Burthen: American Prisoners of War in the Revolutionary South, 1780-1782,* (Columbia, SC: University of South Carolina Press, 2012), p. 28. For the military situation in West Florida see Joseph Barton Starr, *Tories, Dons, and Rebels: The American Revolution in British West Florida,* (Tallahassee, FL: University of Florida Press, 1977); and for Jamaica see Trevor Burnard, *Jamaica in the Age of Revolution,* (Philadelphia: University of Pennsylvania Press, 2020).

[5]C. Leon Harris, 'Prisoners of War from the Siege of Charleston and the Battle of Camden who Joined the British in the Duke of Cumberland Regiment' (May 6, 2021) http://revwarapps.org/b406.pdf. Accessed 2 November 2022; Hoock, *Scars of Independence*, p. 221.

although Odell did eventually enlist more than 300 men for his Loyal American Rangers. Some of those men came from American refugees. They arrived in Kingston, Jamaica on February 8, 1781. Odell's corps also took in two independent companies from the remnants of several volunteer corps that had served in Dalling's disastrous Mosquito Coast expedition. Captain Jeffry Amherst of the 60th Regiment would recruit 65 more men for their regiment from the prison ships in Charleston and New York after Montagu and Odell had left. Odell's troops set out to reinforce the besieged garrison at Pensacola but failed to arrive before the town surrendered to the Spanish army under General Bernardo Gálvez. The Loyal American Rangers would subsequently serve in Jamaica and 80 of their number under Major Alexander Campbell conducted a raid on Spanish Honduras in August 1782. Odell received a promotion to lieutenant colonel around May of 1782 but died on January 6, 1783. Campbell died at almost the same time. Some of the men from their battalion then became the 2nd battalion of the Duke of Cumberland Regiment.[6]

Lord Charles Greville Montagu (1741-1784), son of the 3rd Duke of Manchester, served as governor of South Carolina from 1766 to 1773 during which time he ended the Regulator Rebellion, a populist vigilante uprising on the frontier against bandits, by establishing backcountry courts and jails. He pardoned the rebellion's leaders.[7] Other political decisions by His Lordship forced him to resign, however. Montagu had pressed Dalling for permission to recruit captured Americans since he had arrived in Jamaica. Dalling now approved this idea and promised to reward Montagu with a commission of lieutenant colonel commandant of a new regiment of regulars serving as American rangers.[8]

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[6]Borick, *Relieve Us of This Burthen*, p. 29, p. 31, pp. 32-34, p. 36, p. 37, pp. 42-43, pp. 44-45, pp. 57-58, p. 67, pp. 77-78, pp. 124-25, p. 129; Albert W. Haarmann, 'Jamaican Provincial Corps 1780-1783,' *Journal of the Society for Army Historical Research* 48 (Spring 1970): pp. 8-11. For the Caribbean on the edge of the American Revolution see Kathleen DuVal, *Independence Lost: Lives on the Edge of the American Revolution*. (New York: Random House, 2016), and Robert M. Calhoon, 'The Floridas, the Western Frontier, and Vermont: Thoughts on the Hinterland Loyalists' in Robert M. Calhoon, Timothy M. Barnes, and Robert S. Davis, eds., *Tory Insurgents: The Loyalist Perception and Other Essays* (1989; special expanded and revised edition, Columbia, SC: University of South Carolina Press, 2010), pp. 218-28.

[7]Richard J. Hooker, *The Carolina Backcountry on the Eve of the Revolution: The Journal and Other Writings of Charles Woodmason, Anglican Itinerant,* (Chapel Hill, NC: University of North Carolina Press, 1933), p. 181, p. 184, pp. 233-34; Richard Maxwell Brown, *The South Carolina Regulators* (Cambridge, MA: Harvard University Press, 1963), p. 39, p. 93, p. 98.

[8]UK National Archives (hereinafter TNA) - Deposition of the Duke of Manchester, n. d., Loyalist claim of Lord Charles Greville Montagu, Audit Office Papers 12/5q, p. 51;

Montagu intended to set out in January 1781 but failed to find a ship for Charleston and that delayed his departure until February 15. He originally wanted to recruit men from the backcountry of South Carolina, where he had ended the Regulator Rebellion by compromise.[9] Germain had backed the Southern Strategy, a grand scheme to invade Georgia and South Carolina to reach this backcountry population and create American Loyalist units that would fight for a British victory in South. He imagined that eventually all of the colonies as far north as Maryland could be restored to the Crown by such a strategy.[10]

Montagu mistakenly believed that peace had been restored in Georgia and South Carolina. Fighting on the frontier, however, had devolved into a bloody civil war as it had across Revolutionary War America. This internecine conflict has been addressed by a number of historians. Holger Hoock noted that South Carolina in 1780-1781 alone had one-fifth of all battle deaths and one-third of the wounded for the whole war and this largely from Americans fighting Americans.[11] Kenneth S Lynn argues that family background played a major role in whether an American chose to join the rebellion or not while Kathleen Duval argues for broadening the definition of Loyalist to encompass the conflict between the British, Native American, and Spanish people of the Gulf Coast with each other.[12]

Alan D. Watson, 'The Beaufort Removal and the Revolutionary Impulse in South Carolina,' *South Carolina Historical Magazine* 84 (July 1983): pp. 121-35.

[9]Robert S. Davis, 'Lord Montagu's Mission to South Carolina in 1781: American POWs for the King's Service in Jamaica,' *South Carolina Historical Magazine* 84 (April 1983): p. 91.

[10]Germain to Clinton, March 8 and December 3, 1778, in K. G. Davies, ed., *Documents of The American Revolution, 1770-1783*, 19 vols., (Dublin: Valentine Mitchell BPP, 1973-1983), p. 15: pp. 58-59, p. 279; Character of Lord Rawdon, character of Lieut. Col. Doyle &c.,' Georgia Papers, Chambers Collection, New York Public Library.

[11]Hoock, *Scars of Independence*, 308.

[12]Duval I, *Independence Lost:*, pp. 5-10. For community and American Loyalists see Kenneth S. Lynn, *A Divided People,* (Westport, CT: Greenwood Publishing, 1977); Robert M. Weir, 'Rebelliousness: Personality Development in the American Revolution' in Jeffrey J. Crow and Larry E. Tise, eds., *The Southern Experience in the American Revolution,* (Chapel Hill, NC: University of North Carolina Press, 1978), pp. 25-54; Brad A. Jones, *Resisting Independence: Popular Loyalism in the Revolutionary British Atlantic,* (Ithaca, NY: Cornell University Press, 2021); Ruma Chopra, *Choosing Sides: Loyalists in Revolutionary America* (Washington, DC: Smithsonian Books, 2013); and Taylor Stoermer, '"The Success of Either Remains in the Womb of Time": The Politics of Loyalty in the Revolutionary Chesapeake' in Rebecca Brannon and Joseph S. Moore,

The Loyalists or Tories tended to come from insular ethnic communities of immigrants and first-generation native-born Americans of different religions and/or attitudes than the much greater numbers of their American-born neighbours. To the American Revolutionaries these communities were viewed as resident alien collaborators who, as enemies of the new state, supported a foreign invader. Contempt for foreign-born persons and religious prejudice then became a powerful tool to gain support for the Revolution in the backcountry by making already suspect minority communities that failed to support the rebellion its victims. The Highland Scots of North Carolina, for example, had been largely royalists in Europe so their American neighbours generally viewed them with suspicion. With the coming of the Revolution, this mistrust evolved into a violent civil war that culminated in the Revolutionary, or Whig, militia's victory over 1,400 Highlanders and 200 former North Carolina Regulators at the Battle of Moore's Creek Bridge, North Carolina, on February 27, 1776.[13] The German community of the Broad and Saluda Fork in South Carolina also remained predominately Loyalist. Historian Peter N. Moore has written about nearby immigrant poor, ethnically distinct, non-slaveholding Loyalists in the Waxhaw community in the Catawba Valley, on the border between North and South Carolina. This Scots Irish 'Blackjack' settlement found itself 'suspect, excluded, and vulnerable.' Its members suffered abuse from mainstream neighbours who 'crushed dissent and heightened fear and hatred of difference.' Like the Irish communities, some of the Germans, the Quakers, and the escaped enslaved people, the members of this settlement had been victims of intolerance elsewhere, at least as individuals, before seeking freedom and liberty on the British colonial frontier. They felt compelled to go to the British army for protection although usually not keen to serve as soldiers in anyone's military. To their American neighbours and to the British, they were misrepresented as militant

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eds., *The Consequences of Loyalism: Essays in Honor of Robert M. Calhoun,* (Columbia, SC: University of South Carolina Press, 2019), pp. 18-20.

[13]Robert S. Lambert, *South Carolina Loyalists in the American Revolution,* (Columbia, SC: University of South Carolina Press, 1987), pp. 48-49; Wayne E. Lee, *Crowds and Soldiers in Revolutionary North Carolina: The Culture of Violence and War,* (Gainesville, FL: University Florida Press, 1990), p. 171; Robert M. Calhoon, *The Loyalists in Revolutionary America, 1760-1781,* (New York: Harcourt Brace Jovanovich, 1973), pp. 439-46; A. Roger Ekirch, 'Whig Authority and Public Order in Backcountry North Carolina,' in Ronald Hoffman, Thad W. Tate, and Peter J. Albert, eds., *An Uncivil War: The Southern Backcountry during the American Revolution,* (Charlottesville, VA: University of Virginia Press, 1985), pp. 99-106. Bobby G. Moss identifies Loyalists at Moore's Creek Bridge in *Roster of Loyalists at The Battle of Moore's Creek Bridge,* (Blacksburg, SC: Scotia-Hibernia Press, 1992). Many of these Scotsmen must have been among the 1,400 men who eventually served in John Hamilton's Royal North Carolina Regiment.

loyalists ready to die as martyrs for the King or, conversely, as propertyless mixed race bandits termed 'white savages.' They were largely neither.[14]

Otherwise, the two opposing sides looked so much alike that for identification the patriots would sometimes wear white paper and the Loyalists used green twigs/pine knots, respectively, for identification. Colonel Samuel Elbert wrote that the Loyalists wore red in their headgear. General Augustin Prévost wrote that Loyalists identified themselves with either a red cross or pine twigs in their hats.[15] In the last months of the war, the lynching of prisoners of war in the South became known as 'Granting a Georgia parole'.[16] Lessons from the Southern Strategy on how to lose against populist uprisings resonates to the present.[17]

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[14]Wallace Brown, *The Good Americans: The Compensation and Motives of the American Loyalist Claimants,* (Providence, RI: William Morrow Company, 1965), p. 6; Rachel N. Klein, 'Frontier Planters and the American Revolution: The South Carolina Backcountry, 1775-1782,' in Hoffman, *et al*, *An Uncivil War*, p. 46; Peter N. Moore, 'This World of Toil and Strife: Land, Labor, and the Making of an American Community, 1750-1805' (PhD dissertation., University of Georgia, 2001), pp. 59-61, pp 12-14, p. 132, p.137.

[15]Thomas Young, 'Memoirs of Major Thomas Young,' *South Carolina Magazine of Ancestral Research* 4 (Summer 1976): p. 183; TNA Colonial Office Papers 5/80, folio 240 - Augustin Prévost talk to the Creeks, March 13, 1779; William Speer to John A. Speer, December 9, 1869, William Speer file, Kettle Creek Historic Site, Box 11 RCB-19864, Record Group 30-4-18, Georgia Archives, Morrow; Gordon B. Smith, *Morningstars of Liberty: The Revolutionary War in Georgia, 1775-1783*, 2 vols. to date, (Milledgeville, GA: Boyd Publishing, 2006), 1: p. 95.

[16]Dr. Thomas Taylor to Rev. John Wesley, February 28, 1782, Shelbourne Papers, William L. Clements Library, Ann Arbor, Michigan; 'SAVANNAH, MARCH 14,' *Royal Georgia Gazette* (Savannah), March 14, 1782, p. 3 c. 1; William Moultrie, *Memoirs of the American Revolution, So Far as It Related to the States of North and South Carolina and Georgia,* 2 vols., (New York: D. Longworth, 1802), 2: p. 336; E. W. Carruthers, *Revolutionary Incidents and Sketches of Character Chiefly of the Old North State,* (Philadelphia: Hayes & Zell, 1854), p. 431; Harold E. Davis, *The Fledgling Province: Social and Cultural Life in Colonial Georgia, 1733-1776,* (Chapel Hill: University of North Carolina Press, 1976), p. 17.

[17]For the civil war in the Revolutionary War South see Jim Piecuch, *Three Peoples, One King: Loyalists, Indians, and Slaves in the Revolutionary South Carolina,* (Columbia, SC: University of South Carolina Press, 2008); Patrick O'Kelley, '*Nothing but blood and slaughter': Military Operations and Order of Battle of the Revolutionary War in the Carolinas*, 4 vols. (Bangor, ME: Booklocker, 2004); and James Swisher, *The Revolutionary War in the Southern Backcountry,* (New York: Pelican Publishing, 2007).

Unable to reach the frontier safely, Montagu turned to the prisoners that even he admitted were held in substandard conditions on the prison hulks. He faced serious opposition. The Continental Congress had opposed trading healthy British and German soldiers that had surrendered in the Saratoga Campaign for malnourished and sick Revolutionary POWs from the British prison hulks. One of British General Sir Henry Clinton's reasons for capturing Charleston was to take so many prisoners of war as to force a renewal of the exchange of prisoners taken at Saratoga.[18]

General Lord Charles Cornwallis, left by Clinton to command the British forces in the southern colonies, initially refused Montagu because he hoped to exchange the 2,000 or more men, he held for the Saratoga soldiers. Nisbet Balfour, in command at Charleston after Cornwallis led his army northward, however, approved of Montagu's plans. Ironically, by that time Cornwallis had finally arranged for a prisoner exchange and he also allowed for the recruitment of men for the West Indies. Germain insisted upon recruitment from the prisoners, placing his view of the greater needs of the Empire as more important than anything that could be salvaged from what remained of the war in mainland America. Balfour threatened that the prisoners who did not enlist would suffer punishment in retaliation for atrocities committed by the Revolutionary militia.[19]

The British had recruited from prisoners of war since 1776. Some of the men who were captured at the British victory at Camden, South Carolina on August 16, 1780, for example, enlisted in the British Volunteers of Ireland. The Georgia Loyalists and the King's Ranger battalions enlisted men from the prison hulks in Savannah for which their commanding officers received the censure of Lord Cornwallis. Montagu's success, however, would be the largest such recruitment of the war.[20]

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[18]T. Cole Jones, *Captives of Liberty: Prisoners of War and the Politics of Vengeance in the American Revolution,* (Philadelphia, PA: University of Pennsylvania Press, 2019), pp. 158-59, pp. 191-92.

[19]Lord Charles Cornwallis to James Wright, Jr., July 21, 1780, Cornwallis to Sir Henry Clinton, August 29, 1780, Saberton, *The Cornwallis Papers*, 1: pp. 274-84, 2: pp. 41-42; Moultrie, *Memoirs of the American Revolution*, 2: pp. 149-50, p. 168, pp. 166-71; Balfour to 'Militia Prisoners of War,' May 17, 1781, in R. W. Gibbes, ed., *Documentary History of the American Revolution*, 3 vols. (Columbia, SC: Banner Steam Power Press, 1853), 3: pp. 72-73.

[20]TNA Alured Clarke to Cornwallis, July 2, 1780, Wright to Cornwallis, July 15, 1780, Thomas Brown to same, July 16, 1780, Cornwallis to Wright, July 21, 1780, and Nisbet Balfour to Cornwallis, June 27, 1780, Saberton, *The Cornwallis Papers*, 1: pp. 242-45, pp. 274-84, pp. 328-29; Wright, to same, August 20, 1780, Cornwallis Papers, 30/11/5, folios 59-60; Borick, *Relieve Us of This Burthen*, pp. 28-31, p. 42, p.72; Davis, 'Lord Montagu's Mission,' p. 92, p. 94, and 'A Georgian and a New Country: Ebenezer Platt's

British authorities had already transferred prisoners to Africa, India, the South Seas, and Sumatra to work, and often die, in labour battalions. This despite the poor treatment of the famed Ethan Allen and others having compelled the King to order that all those incarcerated be treated as prisoners of war and returned to America. Prisoners considered leaving the horrible conditions of the British prison ships, even if doing so risked death from disease in Central America. They often received treatment as traitors rather than as prisoners of war. The worst of the hulks, the *Jersey* anchored near New York, became the deadliest prison in American history considering the number of men held to the number of prisoners who died. Reportedly, hundreds of its inmates were compelled to join the Royal Navy. British officer James Simpson wrote at the time that he hoped Montagu could recruit from the prisoners in Charleston because otherwise few of them would still be alive by the following summer. Historian Carl P Borick estimates that, of 4,000 prisoners eventually held just in Charleston, nearly one-quarter volunteered for or became impressments in the British army or navy. An estimated 800 men died in British captivity in Charleston.[21]

Montagu ordered William Love (sometimes given as Lowe), formerly a captain in the 3rd South Carolina Continental Regiment, to board the Charleston prison hulks to recruit men on February 9, 1781. His Lordship initially found resistance from the nearly naked, sick, and starving prisoners on the Charleston hulks, despite offers of freedom and regular pay serving against Spain and not their Revolutionary comrades. Governor Darling recommended Sergeant John Brown of the 64th Regiment as a recruiting agent. Brown ordered the prisoners on deck and asked for volunteers. When none came forward, he had men seized. Anyone who resisted received a beating. Reportedly, the recruiting officers threatened to withhold clothing sent to the prisoners by Congress, and send prisoners held in barracks to the prison hulks, and to cut off rations given to the dependents of prisoners. Montagu unsuccessfully appealed to the Revolutionary General William Moultrie, then a prisoner on parole, for help in recruiting.[22]

Imprisonment in Newgate for Treason in 'The Year of the Hangman,' 1777,' *Georgia Historical Quarterly* 84 (2000): pp. 106-15.

[21]Hoock, *Scars of Independence*, 186-201, pp. 211-40; Borick, *Relieve Us of This Burthen*, pp. 78-79, p. 147; Edwin G. Burrows, *Forgotten Patriots: The Untold Story of American Prisoners during the Revolutionary War,* (New York: Basic Books, 2008), pp. 163-68; Robert P. Watson, *The Ghost Ship of Brooklyn: An Untold Story of the American Revolution,* (New York: Da Capo Press, 2017), pp. 214-16; Charles A. Jellico, *Ethan Allen: Frontier Rebel,* (Syracuse, NY: Cornell University Press, 1969) pp. 162-64.

[22]Moultrie, *Memoirs of the American Revolution*, 2: pp. 149-50, p. 168, 1 pp. 66-71; Shamus O. D. Wade, '1386 The South Carolina Regiment?,' *Journal of the Society for Army Historical Research* 72 (Spring 1994), pp. 62-63; Borick, *Relieve Us of This Burthen*,

By whatever means, Captain Love had 369 White enlistees and four Black pioneers enrolled within a few days. Montagu's final totals came to six companies of almost 600 men for the 1st Battalion of 'His Royal Highness, the Duke of Cumberland's Regiment of Carolina Rangers.' By May 21, 1781, Balfour insisted that Montagu leave with his new regiment before the prisoners revolted and tried to take over Charleston. Already more than 500 of the men incarcerated on the hulks had escaped and Balfour had to find funds to cover the expense of feeding and guarding the remaining prisoners. Montagu and his regiment left just as Generals Nathanael Greene and Lord Cornwallis had agreed to a cartel that would have exchanged these prisoners. Finding any ships leaving from Charleston proved difficult but, on May 24, Montagu and his regiment left Charleston in two transport ships protected by two frigates. The latter abandoned the transports at St. Kitts. Despite his efforts, Montagu could find no passage to Jamaica protected from enemy privateers until August 2.[23]

Incomplete records of Montagu's recruits as individuals survive. They included in their ranks many of the Delaware and Maryland Continentals captured fighting until overwhelmed at the battle of Camden. They were trained regulars who had proven their discipline and skill in battle, without the negative reputation of the Hessians as soldiers and with the added advantage of speaking English. Dalling had argued that the Continental soldiers were often native Europeans whom he believed would make better-disciplined soldiers for the British army than the native-born who had a reputation for stubborn independence. Some one-third of the sampling had British nativity. They had an average height of five feet, five inches tall. Place of birth shows that these men also had representatives from every colony from Georgia to New England; France; Germany; the East Indies; and the West Indies. The Duke of Cumberland Regiment had a remarkably low rate of desertion, eight men of whom only two came from the prisoners of war. Many soldiers died from tropical diseases in Jamaica, however.[24]

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pp. 34-35; Davis, 'Lord Montagu's Mission,' pp. 96-97; Haarmann, 'Jamaican Provincial Corps,' p. 10; Bobby Gilmer Moss, *Roster of South Carolina Patriots in the American Revolution* (Baltimore: Genealogical Publishing, 1985), pp. 583-84.

[23]Borick, *Relieve Us of This Burthen*, pp. 44-45, pp. 77-78; Davis, 'Lord Montagu's Mission,' p. 95, p. 97; Wade, '1386 The South Carolina Regiment?,' pp. 63-65; Haarmann, 'Jamaican Provincial Corps,' pp. 10-11.

[24]Recruiting List, Duke of Cumberland Regiment, February 11, 1781, in Murtie June Clark, comp., *Loyalists in the Southern Campaign of the American Revolution*, 3 vols. (Baltimore, MD: Genealogical Publishing Company, 1981), 1: pp. 471-78; Davis, 'Lord Montagu's Mission,' pp. 99-100. For the Hessians as additions to the British military and some of them forced to serve in America see Friederike Baer, *Hessians: German*

Montagu's Duke of Cumberland Regiment remained in Jamaica for the rest of the war, prepared to defend the island from a French invasion that never came. These soldiers received high praise from Dalling and from his successor Governor Archibald Campbell (1739-1791). The latter had led an invasion force that overran the northern half of Georgia in a failed effort to reach the backcountry southern Loyalists in 1778-1779. Campbell found the militia of Jamaica, as he had the Georgia Loyalists in 1779, useless. In Jamaica, he chose to depend upon the regulars, including Montagu's regiment, should France or Spain invade the island.[25]

As part of the worldwide nature of this war and as the British war effort failed in America, Campbell still sought soldiers to serve the King in the Caribbean. He sent agents to Charleston to recruit a third battalion for the Duke of Cumberland Regiment from free African Americans but the British evacuated that city before any new enlistments took place. Governor Campbell then asked Montagu to raise another battalion in New York. The crew of the ship in which his Lordship travelled, however, mutinied and deserted to the Revolutionary side. Montagu found himself a prisoner of war and charged with the deaths by disease of men he had recruited. General Nathaniel Greene released him, however, because North Carolina Governor Alexander Martin learned that the men Montagu had first enlisted had reportedly volunteered. Montagu brought back to Jamaica another 500 recruits from New York.[26]

The men of Montagu's regiment now had to make decisions about their future with this world war coming to an end. British strategists had tried throughout the war,

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Soldiers in the American Revolutionary War, (New York: Oxford University Press, 2022), pp. 37-61.

[25]TNA Colonial Office Papers 137/81, 137/82, 137/83 - Dalling to German, August 1 and October 10, 1780, Archibald Campbell to Lord Frederick North, June 28, 1783; O'Shaughnessy, *An Empire Divided*, p. 49, p. 178. For Campbell's Georgia campaign see Archibald Campbell, *Journal of An Expedition against the Rebels of GEORGIA IN NORTH AMERICA Under the Orders of ARCHIBALD CAMPBELL ESQUIRE LIEUT. COLO. Of HIS MAJESTY'S 71st REGIMT, 1778*, ed. Colin Campbell (Darien, GA: Richmond County Historical Society, 1981).

[26]Lord Charles Montagu to Nathanael Greene, February 3, 1783, Greene to Montagu, February 11, 1783, Alexander Martin to Greene, February 16, 1783, and March 28, 2783, in Richard K. Showman, ed., The *Papers of Nathanael Greene*, 13 vols., (Chapel Hill, NC: University of North Carolina Press, 1976-2015), p. 12: pp. 412-13, pp. 428-29, pp. 451-54, pp. 444-45; Davis, 'Lord Montagu's Mission,' 98-101. For the Loyalist diaspora see Wallace Brown and Hereward Senior, *Victorious Defeat: The American Loyalist in Exile,* (New York: Facts on File, 1984) and Maya Jasanoff, *Liberty's Exiles: American Loyalists in the Revolutionary World* (New York: HarperCollins, 2011).

from Georgia to Canada, to save the mainland colonies by militarising Americans for the King's cause through officers such as Archibald Campbell. This 'Americanisation' of the war failed time and again. Always the effort deteriorated into a violent civil war. Many Americans, Loyalist and not, would leave the United States after the Revolution to settle within the British and Spanish empires, from Central America to the South Seas.[27]

Despite the fear of persecution, some of the survivors of Montagu's regiment returned to America but the majority settled in Nova Scotia as part of the great Loyalist diaspora across the British Empire, Black and White. African Americans, enslaved and free, carried the ideals of the American Revolution combined with their own struggle for human rights to Africa, Jamaica, and Nova Scotia through their leaders David George and Henry Washington, the latter once the enslaved servant of George Washington.[28] George Liele's enslaver, a Loyalist who died in battle in Georgia fighting for the Southern Strategy, had emancipated him during the war and he worked in Jamaica for Governor Archibald Campbell, the British officer who boasted that he tore

[27]Ruma Choptra, 'Post War Loyalist Hopes: To Be "Parts and Not Dependencies" of the Empire,' in Brandon and Moore, *The Consequences of Loyalism*, 228-43.

[28]Simon Schama, *Rough Crossings: Britain, the Slaves and the American Revolution,* (New York: Ecco, 2006), pp. 96-97; Hugh Bicheno, *Rebels & Redcoats: The American Revolutionary War*, (New York: William Collins, 2004), pp. 159-60. For the Black American Loyalist diaspora see Graham Russell Hodges, *The Black Loyalist Directory: African Americans in Exile after the American Revolution,* (New York: Scholarly Title, 1996); Gary B. Nash, *The Forgotten Fifth: African Americans in the Age of Revolution,* (Cambridge, MA: Harvard University Press, 2006); Mary Louise Clifford, *From Slavery to Freetown: Black Loyalists After the American Revolution*, (Jefferson, NC: McFarland Publishing, 1999); Cassandra Pybus, *Epic Journeys of Freedom: Runaway Slaves of the American Revolution and Their Global Quest for Liberty,* (Boston, MA: Beacon Press, 2006); John W. Pulis, ed., *Moving On: Black Loyalists in the Afro-Atlantic World,* (New York: Routledge, 2016); and Stephen Davidson, *Black Loyalists in New Brunswick,* (Halifax, Nova Scotia: Formac, 2020). Hessian regiments also enlisted African Americans. They accepted African Americans as labourers, musicians, servants, and soldiers, even bringing some of them back to Europe. Ironically, in Georgia in the last months of the war, Black soldiers were used to prevent Hessian desertions, Baer, *Hessians*, pp. 96-99, pp. 338-39, p. 344, pp. 379-83; Timothy Lockley, '"The King of England's Soldiers": Armed Blacks in Savannah and Its Hinterlands during the Revolutionary War Era, 1778-1787', in Leslie M. Harris, Diana Ramey Berry, and Jonathan M. Bryant, eds., *Slavery and Freedom in Savannah,* (Athens, GA: University of Georgia Press, 2014), pp. 26-41.

a star and stripe from the United States flag when led a conquest of Georgia.[29] In Jamaica, Liele's followers contributed to the end of slavery across the British Empire in 1834 with their Baptist War.[30]

However, and despite persecutions and a social stigma that lasted for generations, only 1 in 40 Loyalists left the United States during or after the American Revolution. Many other Americans left the new United States not because they supported British rule but because they had little faith in the future of the new country. They would sometimes move to the new post-war Spanish borderlands of East Florida, Louisiana, and West Florida.[31] Some 400,000 of the 'King's Friends' never left the United States at all, and of the exiles, many of them later moved back to the United States. They included 7,300 of their number who resettled in the South after crop failures in the Bahamas in 1797 and 1800. Haitians, surely including some of whom served in the

[29]Manumission, August 12, 1777, Colonial Miscellaneous Bond Book JJ (1779-1780), p. 267, Record Group 49-1-9, microfilm reel 40-37, Georgia Archives, Morrow, GA; Robert S. Davis, 'The Other Side of the Coin: Georgia Baptists Who Fought for the King,' *Viewpoints Georgia Baptist History* 7 (1980): pp. 47-58; John W. Pulis, 'Bridging the Troubled Waters: Moses Baker, George Liele, and the African American Diaspora to Jamaica' in Pulis, ed., *Moving On*, p. 183, pp. 189-92, pp. 199-203, p. 215 fn. 35. For more on Liele and George, see Christopher Curry, *Freedom and Resistance: A Social History of Black Loyalists in the Bahamas,* (Tallahassee, FL: University of Florida Press, 2017) and David T. Shannon, Julia Frazier White, and Deborah Van Broekhaven, *George Liele's Life and Legacy: An Unsung Hero,* (Macon, GA: Mercer University Press, 2013).

[30]Devon Dick, *The Cross and the Machete: Native Baptists of Jamaica—Identity, Ministry, and Legacy,* (Miami, FL: Ian Randle Publishers. 2009), pp. 5-7, p. 23, pp. 46-48, p. 83, p. 91, p. 99, pp. 100-104, p. 199, p. 205, pp. 207-209. For the Baptist War in Jamaica see Doreen Morrison, *Slavery's Heroes: George Liele and the Ethiopian Baptists of Jamaica, 1783-1865,* (Seattle, WA: Liele Books, 2014) and Tom Zoellner, *Island on Fire: The Revolt that Ended Slavery in the British Empire,* (Cambridge, MA: Harvard University Press, 2022).

[31]Jasanoff, *Liberty's Exiles*, xii, p. 47, p.50, pp. 70-71, pp. 249-50, p. 256, pp. 266-72, p. 276, p. 277, p. 280, p. 305, p. 306, p. 358; Rebecca Brannon, 'America's Revolutionary Experience with Transitional Justice,' in Brannon and Moore, *The Consequences of Loyalism*, pp. 190-207; Joseph J. Ellis, *The Cause: The American Revolution and the Discontents, 1772-1783* (New York: Liveright 2021), p. 315; DuVal, *Independence Lost*, pp. 320-51; Robert S. Davis, 'Loyalism and Patriotism at Askance: Community, Conspiracy, and Conflict on the Southern Frontier' in Calhoon, et al, T*ory Insurgents*, pp. 226-38.

French army at Savannah, Georgia during the American Revolution, also resettled in the United States after the Haitian Revolution![32]

Americans who served in Central America and Jamaica, voluntarily or otherwise, joined in this epic Loyalist migration. The Duke of Cumberland regiment disbanded on August 24, 1783. White survivors received an offer of passage back to their homes on the mainland, but they declined to go. Of those men from the Charleston prison ships, 80 chose to remain in Jamaica and enlist in the regular regiments; 74 took passage to Great Britain or Ireland; 240 of their number followed Montagu to Nova Scotia; and 92 chose to settle on the Mosquito Coast. Of Odell's men, the numbers came to 143 for the regulars in Jamaica; 50 for the British Isles; 30 for Halifax; and 15 for the Mosquito Coast. The fate of the African American Black pioneers who came from Charleston and served with Montagu's regiment remains a mystery.[33] A mistaken claim appeared in print that veterans of the Duke of Cumberland and the South Carolina Royalists Regiment, Black and White, became the famed First West India Regiment.[34]

Lord Charles Greville Montagu arrived in Nova Scotia with the first 200 of his men on December 11, 1783. Ironically, having survived years in tropical disease-ridden Jamaica, he succumbed to the effects of his first Nova Scotia winter and died on February 3, 1784, at age 45. The men he recruited from the prison hulks in Charleston and New

[32]Hoock, *Scars of Independence*, 17; Leana Roberts, 'Haitian Contributions to American History: A Journalistic Record' in Doris Y. Kadish, ed., *Slavery in the Caribbean Francophone World: Distant Voices, Forgotten Acts, Forged Identities,* (Athens, GA: University of Georgia Press, 2016), pp. 75-90; John G. Marks, *Black Freedom in the Age of Slavery: Race, Status, and Identity in the Urban Americas,* (Columbia, SC: University of South Carolina Press, 2020), pp. 67-69; Stuart J. McCulloch, *A Scion of Heroes: The World of Captain James Murray,* (Leicestershire, UK: Troubadour, 2015), p. 116. For the Haitian Revolution refugees see David Patrick Geggus, *Haitian Revolutionary Studies* (Bloomington, IN : Indiana University Press, 2002).

[33]Nova Scotia Archives, Halifax, NS 'Return of the disabled officers and Privates with their Wives and Children and Servants of His Highness Duke of Cumberlands Regiment,' MG 12 Misc. vol. 6, pp. 76-77; Borick, *Relieve Us of This Burthen*, pp. 120-24; Robert S. Allen, comp., *The Loyal Americans: The Military Role of the Loyalist Provincial Corps and Their Settlement in British North America,* (New Brunswick: National Museums of Canada, 1983), p. 70, p. 72; Bobby Gilmer Moss and Michael C. Scoggins, *African-American Patriots in the Southern Campaign of the American Revolution,* (Blacksburg, SC: Scotia-Hibernian Press, 2004), pp. 81-82.

[34]Wade, '1386 The South Carolina Regiment?' pp. 62-65; David Brion Davis, *Inhuman Bondage: The Rise and Fall of Slavery in the New World,* (New York: Oxford University Press, 2006), p. 148; A. B. Ellis, *The History of the First West India Regiment,* (London: Chapman & Hall, 1885), pp. 27-28, pp. 50-51.

York erected an impressive memorial in his honour in Halifax. Historian Todd Braisted has discovered that some of Montagu's men in Nova Scotia would, decades later, file for Revolutionary War pensions from the United States government based upon their service before leaving, or as they would claim, before being taken by force from the British prison hulks.[35]

Even to the end of the war, the American conflict had deep connections to the Empire. In 1782, Richard Oswald, as an official British emissary, set the final phase of the American Revolution in motion when he met in France with his acquaintance Benjamin Franklin to negotiate a way for the United States to remain in the British Empire. One of the richest men in the world, Oswald worked with many leaders close to the King on interests across the British Empire. He advised George III on America, and he worked on a project to hire the Russian navy to support Britain in the Caribbean.[36] Ironically, in 1775 Oswald anonymously published *American Husbandry*, a book that called for accommodations with the rebelling colonies. He had proposed the Southern Strategy believing that the population of South Carolina could be persuaded to return to their support of the Crown to restore peace.[37]

The negotiations in Oswald's Paris apartments resulted in the Treaty of Paris of 1783 whereby Great Britain recognized the independence of the United States. Oswald promoted the idea of a great alliance between the two nations that threatened America's relationship with France. This elderly expert on the British Empire even suggested that he might move to his lands in America. Oswald owned several thousand acres of land and and enslaved people in East Florida and on the South Carolina frontier where he had intended to settle German families. His partners were Henry Laurens, I the Second President of the Continental Congress, and John Lewis Gervais,

[35]Harris, 'Prisoners of War from the Siege of Charleston and the Battle of Camden,' pp. 3-4; Davis, 'Lord Montagu's Mission,' p. 102; Borick, *Relieve Us of This Burthen*, pp. 127-31.

[36]Piecuch, *Three Peoples One King*, pp. 130-31. For Oswald's career, see David Hancock, *Citizens of the World: London Merchants and the Integration of the British Community, 1735-1785,* (New York: Cambridge University Press, 1995) and for Oswald's advice to the government see Memoranda of Richard Oswald, 1779-1781, Tracy W. McGregor Library, University of Virginia, Charlottesville, and the Richard Oswald Collection, 1779-1783, William L. Clements Library, Ann Arbor.

[37]An American, *American Husbandry*, ed. Harry J. Carman, (1775; rep. ed. New York, 1939), pp. 352-353. Oswald's authorship of *American Husbandry* remained a secret for almost 250 years. Robert S. Davis, 'The Secrets of the Author of *American Husbandry*: A South Carolina Plantation and a Two-Century-Old Literary Mystery of the Revolutionary War Era,' *The Proceedings of the South Carolina Historical Association* (2015): pp. 45-59.

who provided numerous services in saving the state of South Carolina's independence. Gervais had previously worked for Oswald in Germany and across the British Empire. Oswald and Laurens had made a fortune in the Transatlantic slave trade. They added to the Treaty of Paris a demand for the return of enslaved people who had escaped to the British lines, a provision the King's officers in America refused to carry out. [38]

The story of the recruitment/impressment of American prisoners, many of them European-born and captured in battle in South Carolina, to serve in British campaigns against Spain and the natives in Nicaragua has complexities beyond even the obvious. It argues for a different definition of the world conflict that included the American Revolution but also for exploring a greater cultural and economic entity than just the British Empire.[39]

[38]Andrew Roberts, *The Last King of America: The Misunderstood Reign of George III,* (New York: Viking, 2021), p. 418, p. 420, p. 442, pp. 423-24; W. Stitt Robinson, Jr., 'Richard Oswald the Peacemaker,' *Ayrshire Archaeological and Natural History Society Collection* 1950-1954, 2nd Series, III (January 1954): p. 36, pp. 121-32; H. W. Brand, *The First American: The Life and Times of Benjamin Franklin,* (New York: Anchor, 2000), pp. 601-603 and *Our First Civil War: Patriots and Loyalists in the American Revolution,* (New York: Anchor, 2021), pp. 411-14, pp. 418-21, pp. 423-24.

[39]For more on the American Revolution as part of a longer and greater global conflict see Linda Colley, *Captives: Britain, Empire, and the World, 1600-1850* (New York: Anchor, 2004); Trevor Burnard, *Britain in the Wider World, 1603-1800,* (New York: Anchor, 2020); and Richard Gott, *Britain's Empire: Resistance, Repression, and Revolt* (Brooklyn, NY: Verso, 2011).

Luke Reynolds, *Who Owned Waterloo? Battle, Memory & Myth in British History, 1815-1852*. Oxford: Oxford University Press, 2022. 255pp, 28 figures. ISBN: 978-0192864998 (hardback). Price £65.00.

The most popular attraction of the 1816 London season was an enormous panorama of the Battle of Waterloo, displayed at the rotunda in Leicester Square. Visitors could stand in the centre of the room and receive a 360° view of the action, which had been painstakingly painted based on sketches of the battlefield and imagine themselves at the centre of combat. Although colossally successful, the Leicester Square panorama was actually the *third* Waterloo panorama since the battle was fought, with earlier versions appearing at the Strand and in Edinburgh. Met with glowing reviews and enormous profits - the Leicester Square panorama netted its proprietors over £10,000 in the first few months alone – panoramas demonstrated the widespread public interest in Waterloo during the first half of the nineteenth century.

The Waterloo panoramas are just one set of commemorations discussed in Luke Reynolds' *Who Owned Waterloo?* Indeed, Reynolds' focus is not on the battle itself – although some discussion of combat operations contributes to his argument – but rather he interrogates its cultural afterlife in Britain from the moment that the battle ended until Wellington's death 37 years later. Framing Waterloo as 'a crucial part of modern Great Britain's creation myth' (p. 1), in this telling the battle, the victory, and the mythology that sprung up around it did not solely belong to the soldiers who fought. Instead, it also became the possession of civilians up and down the country who watched plays about the battle, travelled to Belgium to collect relics, and patronised the several Waterloo Hotels which sprang up in the years after 1815. The fascination with Waterloo helped, in Reynolds' words, 'not only to establish and define national identity, but also to justify and anchor Britain's imperial century' (p. 7).

To some extent, the notion of spectator as participant in historical event is familiar ground: for example, Katie Trumpener and Tim Barringer have suggested (in *On the Viewing Platform: The Panorama between Canvas and Screen* (2020)) that the panorama's spectator was encouraged to 'tread the boards' as they imagined themselves transported to the visual sight before them. Reynolds' originality lies in his ability to tie together disparate Waterloo-related events and ephemera, from memoirs to medallions and banquets to bridges, and to build them into an argument about how national identity was formed. Significantly, British cultural creators and commentators emphasised Waterloo as a primarily British event, affording little space to the Prussian forces who were instrumental to the victory. The French, as the defeated adversaries, were permitted almost no ownership of the battle except, perhaps, by Napoleon's

contrarian admirers such as Byron, who cast the event as tragedy in his 1816 narrative poem *Childe Harold's Pilgrimage*.

Reynolds has assembled a breath-taking array of examples of how the Waterloo narrative was commemorated throughout British society. Particularly intriguing is his discussion of the development of British visits to the Waterloo battleground – a proto-dark tourism – which emerged almost immediately after victory was declared. The first tourists, Reynolds writes, 'arrived at the battlefield before word reached Britain of the victory' (p. 44) and were able to witness the immediate aftermath of combat. By the 1830s, Waterloo tourism was a thriving industry, with regular shuttles arriving from Brussels, guidebooks providing advice and recommendations about what to look at and where to stay, and relics for sale as souvenirs. Curious visitors could also see signatures from other famous tourists, including Byron, Southey, and Wordsworth, who had graffitied their names onto the chapel walls at the nearby Chateau de Huguemont, which had been badly damaged during the battle. Such was Waterloo's importance in the nineteenth-century imagination that, as Reynolds puts it, 'Just as important as visiting Waterloo … was being seen to visit Waterloo' (p. 71).

At the centre of all Waterloo narratives, of course, is Wellington himself, who commanded a substantial informal control over which commemorations were able to succeed. Napoleon's effigy, immortalised at Madame Tussaud's as lying dead in his camp bed, met with his seal of approval - George Hayter used it to paint Wellington paying his respects at his foe's bedside in 1852. Conversely, Wellington ignored Charles Siborne's pleas to legitimise his painstakingly created diorama of Waterloo by neither providing him with financial support nor even visiting the completed piece. Despite near-universal British consensus that Waterloo was 'owned' by the British, individual efforts to meet Wellington's approval demonstrate that veterans and civilians alike competed to tell the authentic version of the Waterloo story. And, although retellings rarely explicitly challenged other accounts, there is nevertheless a sense that each version sought to represent itself as definitive: battle memoirs sought to centre the soldiers' importance to the story, for example, whereas the Waterloo tourist experience was grounded in imperialistic ownership to claim 'several acres of another European nation's sovereign soil' (p. 45).

Disparate groups emerged even among army veterans, and Reynolds draws attention to the various commemorations that recognised different ranks and experience in the years after Waterloo. This is most obvious in occasions like Wellington's annual Waterloo banquet – a magnificent event, much reported upon, held at Apsley House between 1821 and 1852, and to which only select veteran officers were invited. A more complex debate emerged when many seasoned veterans of the Peninsular War received no acknowledgment for their service, as they had not been recalled in time to fight at Waterloo, whereas many new recruits who *had* fought were honoured with

medals. The ill-feeling surrounding this perceived unfairness demonstrates how veterans of the same war vied with one another for acknowledgement in the commemorations of the combat.

Reynolds' enthusiasm for his subject is infectious, and his analysis of the variant ways in which Waterloo was commemorated is intelligent. Although no one man or group could truly claim ownership over Waterloo, during Wellington's lifetime cultural ownership of the battle shifted and spread, and by the time of his death, Reynolds shows us, it had become a truly national phenomenon.

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Spencer Jones (ed.), *The Darkest Year: The British Army on the Western Front 1917*. Warwick: Helion & Company, 2022. Notes, Index, 514pp. + 21 maps, ISBN: 978-1914059988 (hardback). Price £35.00.

Despite thirty years of scholarship, our understanding of the learning process that the British Expeditionary Force (B.E.F.) underwent during the First World War remains incomplete. Though not understudied, there is much that is yet to be uncovered. *The Darkest Year: The British Army on the Western Front 1917* – the fourth in a five part series - thus seeks to in part ameliorate this by shedding new light on 'the difficulties that are often hidden behind the simple shorthand of… [that] phrase' (p. xxvii). Focused specifically on the B.E.F.'s activities in 1917, these chapters consider two fundamental themes: the complexity of operations in contrast to previous years; and the tactical improvement of the B.E.F. on the Western Front.

Various subjects are covered, including, among others a helpful, introductory overview of British strategic thinking during 1917; several case studies of individual units and their performance during important, if much-neglected, operations; an assessment of G.H.Q.'s intelligence practices; as well as an examination of the fledgling tank corps, which 'faced an uncertain future' (p. 484). The sixteen chapters concentrate primarily on the first half of the year, eschewing the infamous if overstudied first and second battles of Passchendaele. To achieve this Spencer Jones as editor has assembled a diverse cohort, including, rather refreshingly, numerous PhD students, several independent scholars as well as other familiar and prominent names from earlier monographs in this series.

The Darkest Year addresses several major themes. The first is the complexity of operations on the Western Front. Chapters by Simon Shephard and Alexander Falbo-Wild draw attention to the highly sophisticated nature of Royal Artillery and Royal Engineer support during 1917. Shephard concentrates on the battles of Pilckem Ridge, Menin Road Ridge and the Second Battle of Passchendaele, offering a more detailed and nuanced analysis of artillery arrangements during this campaign, than other historians. He rightly underlines the fact that Royal Artillery barrages were no longer multi-layered but instead multifunctional and in fact multidimensional affairs, designed not just to suppress and destroy enemy forces but to deceive German machine gunners into believing that the 'creeping barrage' covering the advancing infantry had yet to lift. Falbo-Wild, meanwhile, concentrates on the role of the Royal Engineers during the Battle of Arras. The author demonstrates the complexity of their operations, ranging from the more traditional tasks, to communications as well as the management and maintenance of the logistical infrastructure to the rear. Indeed, Falbo-Wild is at pains to emphasise that this prodigious undertaking was achieved in spite of limiting factors, including inadequate supplies of building material required for the construction of roads and the subordinate role of the R.E. to the demands of the other arms. However, he also recognises that the Royal Engineers' success was in part due to advantageous pre-existing geological and geographical features that facilitated their operations.

The tactical improvement of the B.E.F. permeates across *all* sixteen chapters. None more so than Nigel Dorrington's assessment of III Corps and Andy Lock's analysis of the 8 British and 2 Australian Divisions' actions during the pursuit of the German retreat to the Hindenburg Line: immortalised, if poorly, in the blockbuster film, *1917*. Despite focusing on several different units, comparable conclusions are drawn by each author. Firstly, that the B.E.F.'s development was neither exponential nor uniform, but rather of an 'uneven' (p. 255) and inconsistent nature. This is an important consideration, for although historians have established that the tactical transformation of the B.E.F. cannot be viewed as a steady parabola, limited attention has been afforded to how learning varied between the different elements of that organisation. Comparative studies such as these therefore go some way towards ameliorating this shortfall. Secondly, it was not senior commanders but in fact the infantry who adapted most readily to the transition from trench to semi-open warfare. As Dorrington argues, the men acted like 'highly trained troops' (p. 228). Overall, these and other operational studies in *The Darkest Year*, significantly add to our understanding of learning and innovation within the B.E.F. on the Western Front.

Both chapters stand in stark contrast to Harry Sanderson's analysis of the disastrous Third Battle of Scarpe; the failure of which he attributes to the overly optimistic and reckless approach of British senior commanders. In a blistering, yet balanced

assessment, he demonstrates that the plan was hastily conceived, while the commanders of First and Third Armies failed to appreciate that operations during April had drained the fighting capabilities of their manpower. Sanderson also rightly recognises that other factors militated against success, including strong German defensive positions; a reduction in the quality and quantity of manpower; and the deleteriously weak position of the Royal Artillery following the Battle of Arras.

It is important to note the non-operational studies, such as Tom Thorpe's consideration of cohesion within the London Regiment and Charles Fair's ground-breaking research, concerning the development of the Officer Cadet Battalion. Both compliment the otherwise combat and tactical-centric approach of *The Darkest Year*, offering colour to the drier operational studies, while affording a voice to the lower ranks, who are unfortunately noticeably absent.

Given the breadth of the British army's operations during 1917, it is hardly surprising that limitations were imposed on subject matter. It is, however, unfortunate that the contribution of the Machine Gun Corps at Messines, as well as the creation and subsequent work of the Labour Corps were not addressed. Both subjects remain much neglected, in spite of their importance and overall contribution to the B.E.F.'s war effort. The Labour Corps, in particular, was vital to maintaining the rear logistical infrastructure and thus the tempo of operations.

Notwithstanding these minor reservations, *The Darkest Year* is an important contribution to the First World War historiography. This engaging, thought-provoking and indeed insightful collection of essays is a must for *all* military historians, but particularly those interested in a more nuanced understanding of the disjointed nature of learning that occurred across the B.E.F.'s different arms, as well as the manifest difficulties that were encountered and the fractious nature of Allied cooperation during 1917.

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Ross Reyburn, *Eyewitness at Dieppe: The Only First-Hand Account of WWII's Most Disastrous Raid*. Barnsley: Pen & Sword Books, 2022. Notes, Index, 181pp., ISBN: 978-1399059978 (hardback). Price £15.00.

This book is a reissue of the writer Wallace Reyburn's eye-witness account of the infamous British-Canadian raid on the German occupied port of Dieppe in August 1942, with the addition of a foreword by his son, freelance journalist Ross Reyburn. The background to the raid will be fairly well known to most who have an interest in the history of the Second World War. Operation Jubilee, as it was called, was reputedly a rehearsal for the Allied invasion of France that took place in June 1944. The fact that the Allies landed on beaches in 1944 rather than attempting to capture a port of entry was probably a result of the Dieppe raid. The latter was a total failure and most of the 6,000 or so troops who landed became casualties or were taken prisoners-of-war.

The reasons for this failure were many and varied and are well rehearsed in the book. Suffice to say that ignorance, optimism bias, poor planning in some quarters, and bad luck combined to make Jubilee the costly fiasco that it turned out to be. What cannot be denied, however, is the courage and determination of the men who took part.
Wallace Reyburn, whose original account was entitled 'Rehearsal for Invasion' and first published in 1943 not long after the action, was the only journalist who landed with the troops at Dieppe, so his account of the fighting in the town which lasted for a scant six and a half hours has an immediate and personal impact. He was lucky enough to land at Pourville - to the south of Dieppe proper - with the Canadian South Saskatchewan Regiment and the Cameron Highlanders of Winnipeg, and where the assault was initially successful and casualties relatively light. Others who landed elsewhere were not so fortunate.

Reyburn survived the fighting on land and withdrew over the same beach with minor shrapnel wounds, only to have two ships sunk under him before being picked up by a third. He was on the last ship to leave Dieppe and made it back across the Channel to England.

His initial reporting was written shortly thereafter and is very much in the 'hit Hitler for six out of Europe' jingoistic style that prevailed at the time, and was no doubt cleared by the wartime censors before it saw the light of day. As such it is short on coverage and commentary of the Allied failures. Later in life, he corrected the record with a number of commentaries and letters in the British press, in which he was particularly excoriating in his criticism of Lord Louis Mountbatten and his role in planning and conduction the operation.

His son Ross Reyburn's prologue, on the other hand, suffers no such censorship and has the benefit of hindsight and his father's later criticisms. It is not light in its condemnation of the mistakes of the operation. He too devotes a considerable amount of time to re-examining Mountbatten's role in the operation, and in an objective and balanced way before, inevitably, coming to the same conclusion as his father.

At the same time, whilst the sacrifice was very much a Canadian one on the day, he does point out that they were keen and raring to go. They had spent two years training in Britain whilst their Commonwealth cousins from Australia, New Zealand, South Africa, India and other countries had been involved in combat operations for years in theatres like North Africa and Burma, plus of course at sea and in the air. Nobody needed to persuade the Canadians to go to Dieppe, although some had reservations about throwing inexperienced and unblooded troops into such a difficult assault.

There is a plethora of books written on Dieppe and Operation Jubilee, and I have read some of them previously. But as the only eyewitness account from the ground this has a place amongst them. I did like the book and it gave me a new perspective on a well-known story. If I was being picky, I might suggest that Ross Reyburn's prologue might have served better as an afternote or epilogue, for personally I would have preferred to read his father's original account before reading his son's modern commentary. Nonetheless, I would happily recommend this book to general readers and military historians alike as an important addition to our understanding of combined operations and the Second World War.

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Robert Forsyth, To Save An Army: The Stalingrad Airlift. Oxford: Osprey Publishing, 2022. Notes, Index, 385pp. + 57 Illustrations & Maps, ISBN: 978-1472845382 (hardback). Price £20.00.

There are few Second World War topics that equal the Battle of Stalingrad in terms of drama, scale and impact. For just over five months during the Autumn and Winter of 1942/43 Friedrich Paulus's German 6 Army, along with elements of the 4 Panzer Army, fought a life and death struggle to take and retain a city which arguably held marginal strategic importance, but which carried the name of the Soviet Union's leader

– Joseph Stalin. The story of the battle is extremely well documented, with numerous books on the subject ranging from weighty academic studies like David Glantz's three volume magnum opus 'Stalingrad' through to more accessible accounts such as Antony Beevor's bestselling book of the same name. The popular narrative coalesces around a number of themes: the over ambitious objectives of *Fall Blau* (the summer 1942 offensive); an underestimation of the Red Army by the German Oberkommando des Heeres (OKH); the folly of relying on long and poorly defended flanks; Paulus's unwillingness to attempt a breakout during Eric von Manstein's *Unternehmen Wintergewitter* relief attempt; and, the inability of the Luftwaffe to properly supply the surrounded 6 Army after the encirclement. It is the latter aspect that commands the attention of the author, Robert Forsyth. Was it ever feasible to deliver three hundred tons of supplies per day into the Stalingrad *Kessel* ('cauldron' or encircled military area)? Where were the key decisions regarding the airlift made, and by whom? How well was the air transport plan implemented and what were the main operational challenges? In answering these questions, the author has brought a refreshingly new perspective to a well-worn subject – providing real insight into an aspect of operations which has not featured as heavily as it should in the historiography: the air transport arm of the *Luftwaffe*.

Operation Uranus, the encirclement of an entire German Army numbering over 265,000 combatants by the Red Army, was a master stroke in conception and execution. However, it was not the first time that a German Army had been encircled and supplied by air. Early in 1942 elements of the 16 Army had been isolated at Demyansk. In this earlier instance, the *Kessel* was smaller, but the fact that the Luftwaffe was satisfactorily able to supply approximately 100,000 service personnel by air for almost three months is sometimes cited as an appropriate precedent for the Stalingrad relief effort. The author quickly dispels this argument by proving that the airlift conducted by *Luftflotte 1* at Demjansk was simply not scalable, and in any case the operational context was fundamentally different to that which prevailed at Stalingrad.

Notwithstanding the obvious point that after-the-fact memoirs should be treated with caution, it is pretty clear that with the noticeable exception of *Reichsfuhrer* Hermann Göring, virtually all of the senior Luftwaffe commanders involved were highly sceptical that the air supply to the Stalingrad *Kessel* could succeed. Nevertheless, the effort put into the airlift was phenomenal, involving as it did – a Herculean effort from everyone involved. Flight times for the air crews lengthened as Axis home airfields were overrun by the advancing Red Army, the weather was unforgiving with temperatures dropping to -20 degrees or lower, and the logistical challenge of getting the right supplies to the correct railhead became more and more testing. The German aircrew and those who maintained the aircraft in the most difficult of conditions, suffered grievous losses – and the first-hand accounts quoted in the book are not easy to read. Similarly, the

reports of what was happening to those who were trapped in the *Kessel* serve to illustrate the horrors endured by combatants from both sides as the battle unfolded.

The author draws heavily from the memoirs of key Luftwaffe leaders such as Wolfram von Richthofen (the commander of *Luftlfotte 4*), Erhard Milch (appointed by Adolf Hitler to oversee the airlift in January 1943), Friedrich Wilhelm 'Fritz' Morzik (*Luftwaffe* airlift operations) and others to show the scale and complexity of the air supply challenge. The post-war Karlsruhe Project, quoted in Appendix 1 of the book, quantifies what was achieved. Over the course of seventy days from the 25 November 1942, 6,591 tons of supplies were airlifted into the *Kessel* – a daily average of 94.16 tons which was about a third of what 6 Army actually required. Other authoritative sources reveal that just under 25,000 wounded, sick and other personnel were evacuated by air. In achieving these numbers, the variety of aircraft used will come as a surprise to some, for example, the Focke-Wulf Fw 200 (Condor), a four-engine adapted airliner that had seen extensive service in an anti-shipping role over the North Atlantic.

As is clear from the evidence presented, the plan to supply 6 Army by air was never viable. Nevertheless, given that Adolf Hitler had no intention of giving Stalingrad up, it was perhaps inevitable that it would be attempted, particularly if one took the view, as he did, that the encirclement of 6 Army would be short-lived. No effort was spared by the *Luftwaffe* in the execution of the plan, and it is difficult to identify anything more that could have been done by those who had responsibility for it. Indeed, the author explores every aspect – human, operational, tactical and technical – in reaching this conclusion. The *Luftwaffe's* effort can be considered doubly impressive when one takes into account the Soviet attempts to frustrate the airlift. A resurgent Soviet air force and highly effective ground operations against the airfields used to support the air-bridge (including the spectacularly successful *Tatsinskaya* Raid) served to accentuate difficulties caused by the *Luftwaffe's* lack of transport capacity, worsening serviceability and aircraft losses. Whilst the failure of the airlift was catastrophic, the outcome was entirely predictable. In reading this book, one is drawn to the conclusion that the causes of the decisive defeat of the German Army at Stalingrad lie elsewhere. Indeed, the author does an excellent job in illustrating that the *Luftwaffe* did all that it could to fulfil an undertaking that it should never have been given.

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Andrew Wheale, *Ham & Jam: 6th Airborne Division in Normandy – Generating Combat Effectiveness: November 1942-September 1944*. Warwick: Helion, 2022. Xxxviii + 267pp. 7 maps. 7 Tables. 3 Figures. ISBN 978-1915070852 (hardback). Price £35.

Andrew Wheale sets out to chart the development of British airborne capabilities in the Second World War through an examination of one the major formations utilised in this role: 6 Airborne Division. The book is formed of six chapters including an introduction and conclusion. The actions of various British, Commonwealth and United States formations during and after the D-Day landings has had much coverage both in official histories and subsequently by historians. The operations and capabilities of Allied forces has been subject to many decades of historical research and has undergone revision and counter-revision. One area that is lacking in the literature of the Second World War more generally, however, is looking at the development of the fighting capabilities of national armies or looking at individual formations. Wheale's work looks to fill this gap in a small way through a detailed look at not only how an airborne capability developed in Britain in the years prior to 1944, but also how doctrinal principles were modified in the light of German airborne operations, and how experience from training and exercises was incorporated to create a fighting culture within the 6 Airborne Division. Further to this, Wheale examines the leadership ethos and driving force behind the division of Major-General Richard Gale who set the standards to be followed by both the officers and men. In this attempt, Wheale largely succeeds, and this is a book that would be of interest to students and generalists with an interest in Second World War force development, and the learning culture in armed forces and airborne warfare. The book is excellently referenced and makes use of the plethora of primary source material available from the National Archives and other repositories, alongside a wide range of secondary material on the D-Day operation and the subsequent drive through France.

Wheale begins his analysis by exploring the attitude to airborne forces within the War Office in Britain, particularly in response to the successes of German airborne forces in France in 1940 and on Crete in 1941 (pp. 40-3), where the shock value of troops landing from the air had shown themselves. Wheale demonstrates that the investigation by the War Office of the potential of airborne forces was not simply limited to what had been successful. This was a full and frank investigation that sought to understand the risks associated with the use of airborne forces and how these risks might be mitigated. This review took place in the context of airborne forces being a low priority for senior army commanders in Britain prior to the Second World War, and the following quotation highlights the prevailing attitude within the British Army in the inter-war years:

> Airborne forces had been dismissed by the British Army prior to the Second World War. The then Lieutenant-General Archibald Wavell (GOC 2 Div) had observed the September 1936 Kiev manoeuvres by the Soviet Army during which 1,500 paratroopers were dropped. Wavell's final report focussed on Soviet mechanized capability and judging from his scanty comments he clearly viewed the airborne operation as a side show. He reported 'its tactical value may be doubtful', having noted the length of time it took parachutists to regroup after the drop and the vulnerability of their close formation low-flying aircraft (pp. 51-2).

One of the highlights of Wheale's work is the analysis of how airborne forces were trained, led, and how doctrine was developed and refined (pp. 73-128). In this, Wheale devotes much space to providing substantial evidence for the fighting capabilities of the division when deployed to Normandy in support of the D-Day Landings. The standards expected of those who volunteered are clearly evident in the fact that anyone at almost any level of command could be returned to unit if they did not prove themselves to be exceptionally physically fit and have the tenacity to adapt to difficult circumstances during training and exercises. This ethos set by Gale, the division's commander, created an atmosphere that meant the division performed with exceptional skill and bravery despite having never before been deployed against the enemy. It was able to accomplish tasks under difficult circumstances, facing heavy enemy resistance and with minimal logistical support during the airborne drop phase of its operation, as well as holding bridgeheads at the River Orne, something that it would not necessarily have been expected during the initial planning phases of the operation as reinforcements had been expected to reach the division sooner (pp. 173-207). This flexibility of action shows how much effort had been placed into training and the development of the division's combat effectiveness in Britain in the years prior to 1944.

One additional area of interest is the inter-service rivalry that prevented the fuller development of airborne forces and their wider utilisation by British forces due to disagreement about the use of generally obsolescent bombers and their modification into transport aircraft. This was something that the Royal Air Force, and Bomber Command in particular, were desperate to avoid as their experience in the inter-war period had created a fear of losing operational control of aircraft. There were also concerns raised regarding the development of airborne forces removing pilots for training and operations that the Royal Air Force did not consider to be the major wartime role of Bomber Command (p. 49).

This book would be of interest to academics, practitioners and the wider public for differing reasons. For academics it fills a large gap in the current literature on force development in the Second World War. For practitioners it covers the development

of combat effectiveness and the challenges that this poses at various levels of command. Finally, the wider public with an interest in the Second World War would discover a new aspect of the D-Day landings that has had relatively little coverage compared to the amphibious operations and the landing beaches of Normandy.

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SUBMISSION GUIDELINES (July 2021)

General

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A review should summarise the main aims and arguments of the work, should evaluate its contribution and value to military history as broadly defined, and should identify to which readership(s) the work is most likely to appeal. The Journal does not encourage personal comment or attacks in the reviews it publishes, and the Editorial Team reserves the right to ask reviewers for revisions to their reviews. The final decision whether or not to publish a review remains with the Editorial Team.

The Editorial Team may seek the views of an author of a book that has been reviewed in the Journal. Any comment from the author may be published.

All submitted reviews should begin with the bibliographic information of the work under review, including the author(s) or editor(s), the title, the place and year of publication, the publisher, the number of pages, the ISBN for the format of the work that has been reviewed, and the price for this format if available. Prices should be given in the original currency, but if the book has been published in several territories including the UK then the price in pounds sterling should be supplied. The number of illustrations and maps should also be noted if present. An example of the heading of a review is as follows:

Ian F W Beckett, *A British Profession of Arms: The Politics of Command in the Late Victorian Army*. Norman, OK: Oklahoma University Press, 2018. Xviii + 350pp. 3 maps. ISBN 978-0806161716 (hardback). Price £32.95.

The reviewer's name, and an institutional affiliation if relevant, should be appended at the bottom of the review, name in Capitals and Institution in lower case with both to be right aligned.

Reviews of a single work should not contain any footnotes, but if the text refers to any other works then their author, title and year should be apparent in order for readers to be able to identify them. The Editorial Team and Editorial Board may on occasion seek to commission longer Review Articles of a group of works, and these may contain footnotes with the same formatting and standards used for articles in the Journal.

BJMH STYLE GUIDE (July 2021)

The BJMH Style Guide has been designed to encourage you to submit your work. It is based on, but is not identical to, the Chicago Manual of Style and more about this style can be found at:

http://www.chicagomanualofstyle.org/home.html

Specific Points to Note

Use Gill Sans MT 10 Point for all article and book review submissions, including footnotes.

Text should be justified.

Paragraphs do not require indenting.

Line spacing should be single and a single carriage return applied between paragraphs.

Spellings should be anglicised: i.e. –ise endings where appropriate, colour etc., 'got' not 'gotten'.

Verb past participles: -ed endings rather than –t endings are preferred for past participles of verbs i.e. learned, spoiled, burned. While is preferred to whilst.

Contractions should not be used i.e. 'did not' rather than 'didn't'.

Upon first reference the full name and title of an individual should be used as it was as the time of reference i.e. On 31 July 1917 Field Marshal Sir Douglas Haig, Commander-in-Chief of the British Expeditionary Force (BEF), launched the Third Battle of Ypres.

All acronyms should be spelled out in full upon first reference with the acronym in brackets, as shown in the example above.

Dates should be written in the form 20 June 2019.

When referring to an historical figure, e.g. King Charles, use that form, when referring to the king later in the text, use king in lower case.

Foreign words or phrases such as *weltanschauung* or *levée en masse* should be italicised.

Illustrations, Figures and Tables:

- Must be suitable for inclusion on an A5 portrait page.
- Text should not be smaller than 8 pt Gill Sans MT font.
- Should be numbered sequentially with the title below the illustration, figure or table.
- Included within the body of the text.

Footnoting:

- All references should be footnotes not endnotes.
- Footnote numeral should come at the end of the sentence and after the full stop.
- Multiple references in a single sentence or paragraph should be covered by a single footnote with the citations divided by semi-colons.
- If citation management software is used the footnotes in the submitted file must stand alone and be editable by the editorial team.

Quotations:

- Short (less than three lines of continuous quotation): placed in single quotation marks unless referring to direct speech and contained within that paragraph. Standard footnote at end of sentence.
- Long (more than three lines of continuous quotation): No quotation marks of any kind. One carriage space top and bottom, indented, no change in font size, standard footnote at end of passage.
- Punctuation leading into quotations is only necessary if the punctuation itself would have been required were the quotation not there. i.e. : ; and , should only be present if they were required to begin with.
- Full stops are acceptable inside or outside of quotation marks depending upon whether the quoted sentence ended in a full stop in the original work.

Citations:

- For books: Author, *Title in Italics*, (place of publication: publisher, year of publication), p. # or pp. #-#.
- For journals: Author, 'Title in quotation marks', *Journal Title in Italics*, Vol. #, Iss. # (or No.#), (Season/Month, Year) pp. #-# (p. #).
- For edited volumes: Chapter Author, 'Chapter title' in Volume Author/s (ed. or eds), *Volume title in italics*, (place of publication: publisher, year), p. # or pp. #-#.
- Primary sources: Archive name (Archive acronym), Catalogue number of equivalent, *'source name or description' in italics* if publicly published, p. #/date or equivalent. Subsequent references to the same archive do not require the Archive name.

- Internet sources: Author, 'title', URL Accessed date. The time accessed may also be included, but is not generally required, but, if used, then usage must be consistent throughout.
- *Op cit.* should be shunned in favour of shortened citations.
- Shortened citations should include Author surname, shortened title, p.# for books. As long as a similar practice is used for journals etc., and is done consistently, it will be acceptable.
- Ibid., with a full stop before the comma, should be used for consecutive citations.

Examples of Citations:

- Michael Howard, *War in European History* (Oxford: Oxford University Press, 2001), p. 21.
- Michael Collins, 'A fear of flying: diagnosing traumatic neurosis among British aviators of the Great War', *First World War Studies*, 6, 2 (2015), pp. 187-202 (p. 190).
- Michael Howard, 'Men against Fire: The Doctrine of the Offensive in 1914', in Peter Paret (ed.), *Makers of Modern Strategy*, (Oxford: Clarendon, 1994), pp. 510-526.
- The UK National Archives (TNA), CAB 19/33, Lieutenant-General Sir Henry Sclater, evidence to Dardanelles Commission, 1917.
- Shilpa Ganatra, 'How Derry Girls Became an Instant Sitcom Classic', *The Guardian*, 13 February 2018, https://www.theguardian.com/tv-and-radio/2018/feb/13/derry-girls-instant-sitcom-classic-schoolgirls-northern-ireland Accessed 20 April 2019.

Note: Articles not using the citation style shown above will be returned to the author for correction prior to peer review.