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To cite this article: Mark Bennett (2022) International analysis of battlefield performance in the Austro-Prussian War, 1866–1870, War & Society, 41:3, 182–200, DOI: [10.1080/07292473.2022.2087399](https://doi.org/10.1080/07292473.2022.2087399)

To link to this article: <https://doi.org/10.1080/07292473.2022.2087399>



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Published online: 21 Jul 2022.



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International analysis of battlefield performance in the Austro-Prussian War, 1866–1870

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Following the startling Prussian victory in the Austro-Prussian War of 1866, European observers sought to understand the war's lessons and to apply them to future conflict. This article traces the way in which commentators in Britain, France, Prussia, Austria, and the various secondary states of Germany evaluated tactical developments resulting from the war. It highlights the transnational community of interest in military affairs, and how some imperfections in military learning from the war were nationally specific while others transcended borders. Understandings of the war's battlefield implications were often slow to develop, and imperfectly anticipated conditions in the subsequent Franco-Prussian War.

KEYWORDS Austro-Prussian War, modern European history, intellectual history, tactics, military learning

In the summer of 1866, as Prussia and Austria spiralled into war, London's *Morning Post* thought it 'quite possible that Berlin might be garrisoned by Austrian troops before this day [next] month' – with similar opinions being 'a received article of faith at all regimental messes'.¹ Indeed, London's evident Austrian sympathies invited comment in papers as disparate as the *Cheltenham Chronicle* and the Darmstadt *Allgemeine Militär-Zeitung*.² More neutral newspapers anticipated 'a bloody ... costly ... and a long war', or 'a ruinous waste of national resources'.³

¹ *Morning Post*, 16 June 1866, 4; Edward Dicey, *The Battle-Fields of 1866* (London: Tinsley Brothers, 1866), 4.

² *Cheltenham Chronicle*, 19 June 1866, 8; *Allgemeine Militär-Zeitung*, 9 June 1866, 177. Dicey also found 'public sympathy ... very strongly in favour of the Austrians'; Dicey, 3.

³ *Western Daily Press*, 7 June 1866, 2; *Liverpool Mercury*, 5 June 1866, 6; *Times*, 13 June 1866, 8; *Westmorland Gazette*, 16 June 1866, 4.

Instead, within the *Morning Post*'s month, Prussia secured a breath-taking series of victories over Austria, made possible by a combination of technology – primarily the breech-loading Dreyse needle-rifle – and a peerless and systematic approach to war.⁴

Much has been written on how governments responded to the events of the war, whether in terms of army organisation, recruitment, strategy, or – the focus of this article – in terms of tactics.⁵ This article, however, looks beyond the professional sphere of government responses, military procurement decisions and official tactical instructions to understand responses to these victories among contemporary observers in Britain, France, Prussia, Austria, and the secondary German states. By grounding its analysis in the network of engaged civilian authors and serving personnel publishing for a dual civilian and military audience, it enables a more effective consideration of the interplay between broader public debate and government action. Complementing elite narratives about armies as learning institutions, it explores the views of those observing and commenting rather than those making decisions. In turn, this elucidates some of the means by which intellectual developments were communicated beyond military professionals to more generalist audiences.

Rather than the mainstream British newspapers used in the introduction, the article draws primarily on military periodicals (from the British *Naval and Military Review* to the French *Spectateur Militaire*) and both general and specialist books and pamphlets which emerged between the end of the Austro-Prussian War and the outbreak of the Franco-Prussian War, with a preference for unofficial and previously unexamined sources.⁶ It closes its analysis part way through 1870 not

⁴ General background on the conflict has been derived from Geoffrey Wawro, *The Austro-Prussian War* (Cambridge: Cambridge University Press, 1996) and Dennis E. Showalter, *The Wars of German Unification* (London: Hodder Arnold, 2004).

⁵ Geoffrey Wawro, *The Franco-Prussian War: The German Conquest of France in 1870–1871* (Cambridge: Cambridge University Press, 2003), 50–63; Michael Howard, *The Franco-Prussian War: The German Invasion of France, 1870–1871* (London, New York: Methuen, 1981), 5–8; Showalter, 208–13, 225; John Anthony Dredger, 'Offensive Spending: Tactics and Procurement in the Habsburg Military, 1866–1918' (PhD diss., Kansas State University, 2013), 1–53; Edward M. Spiers, *The Late Victorian Army 1868–1902* (Manchester: Manchester University Press, 1999), 238–48, 255–7; The Marquess of Anglesey, *A History of the British Cavalry 1816–1919* II (London: Leo Cooper, 1975), 446–52. Although Perry D. Jamieson, *Crossing the Deadly Ground: United States Army Tactics, 1865–1899* (Tuscaloosa: University of Alabama Press, 1994) does not cover the war, this is most likely due to insularity on the part of the subjects rather than the author.

⁶ For instance, the article omits the Austrian *Österreichische Militärische Zeitschrift*, an official magazine edited by Generalkriegskommissar von Streffleur, whose tactical lessons have already been covered by Wawro, *Franco-Prussian War*, 50–64 and Dredger, 1–53. Instead, it focuses on the *Militär-Zeitung*, edited by Jaromir Hirtenfeld until 1868, and then subsequently taken over by Friedrich von Geitler and renamed the *Neue Militär-Zeitung* (here called Hirtenfeld's *Militär-Zeitung* throughout to differentiate it clearly from the Darmstadt *Allgemeine Militär-Zeitung*). This journal later found itself opposed to senior Austro-Hungarian officials authoring anonymous articles in other publications: Ian Foster, 'Military newspapers and the Habsburg officers' ideology after 1868' in *Patterns of Knowledge in the 19th Century: Proceedings of the Symposium in Honour of Professor Martina Lauster's Retirement*, ed. by Ricarda Schmidt and Gert Vonhoff (Munich: MV Wissenschaft, 2010), 18–19. The rule has not been applied religiously where official sources were the best or only available source of commentary; however, its broad application was considered likely to produce the most relevant results given the article's scope.

because discussion on the war ceased, but in the interest of understanding such discussion undiluted by lessons from subsequent conflicts. Similarly, the article deals predominantly with evaluations of historical events rather than estimations of how effectively government responses would manage the future demands of the battlefield. Its focus is on the tactical level of battlefield performance, exploring both how the war's lessons were understood and how they affected predictions of future conflict. This tactical focus allows us to derive insights into broader social and cultural phenomena from contemporary interpretations of battlefield performance.

Victorian fascination with technology, for instance, might encourage contemporary commentators to attribute the war's results solely to the Dreyse's superiority over the Austrian Lorenz muzzle-loader. Yet this simple technological comparison conceals nuances. Prussian infantry manoeuvred in small flexible company columns, shaking into open order before contact; Austrian infantry employed large battalion columns which aimed to cross the dangerous ground quickly and engage hand-to-hand. When these tactical systems interfaced, Austrian weaknesses meshed almost exactly with Prussian strengths, leaving hapless Austrian infantry charging into a storm of well-aimed bullets. Nevertheless, in most countries commentators tended to ascribe the needle-rifle's success not to its intrinsic merits, but as part of a broader tactical system.

It further allows us to question whether observers assessed Prussian tactics in isolation, or saw battle as the intersection of competing tactical systems. Austria's allies adopted tactics ranging from Austrian-inspired *Stoßtaktik* among various contingents of the German Confederation's VIII Corps, to more defensive linear tactics in Bavaria and Hanover.⁷ Consequent battlefield performance was similarly mixed, with the latter tactics generally providing the less humiliating defeats. Contemporary observers however generally struggled to unpick this complex mess of tactical lessons or to consider enemy tactics alongside Prussian ones.

The branch of artillery also offers a particularly helpful opportunity to test the analytical skills of contemporary commentators. Antiquated doctrine limited the battlefield role of Prussia's modern breech-loading steel artillery, while aggressive handling of Austrian rifled muzzle-loading artillery overcame some of its technological deficiencies. By the Franco-Prussian War, the excellence of Prussia's new doctrine effectively established rifled breech-loaders as the artillery of the future.⁸ For the most part, however, the potential of Prussian artillery was overlooked as comprehensively by commentators as by governments outside Prussia, while discussions on doctrine were limited in comparison to those on materiel.

Exploring these more popular evaluations ultimately allows us to set government responses into a broader context. Despite occasional examples of remarkable prescience, external observers and governments alike were hampered by preconceptions as well as the limitations of information transfer. Innovations such as the steam train and telegraph had dramatically changed the art of war; yet although they facilitated

⁷ Wawro, *Austro-Prussian War*, 292–3; Victor von Diebitsch, *Die königlich hannoversche Armee auf ihrem letzten Waffengange im Juni 1866* (Bremen: M. Heinsius Nachfolger, 1897), 39–40.

⁸ Howard, 5–6; Wawro, *Franco-Prussian War*, 57–60.

the transfer of information throughout Europe, their effect on the art of writing about war was less marked. Certain works such as the anonymous *Taktische Rückblicke auf 1866* cut across national boundaries, but unofficial commentators fared poorly in comparison to more 'authoritative' works such as the Prussian and Austrian Official Histories. Furthermore, there was no globalised economy of knowledge: even in German and Austrian states where language barriers did not exist, discussion in printed works – let alone in officers' messes and the corridors of power – tended to reflect national as often as transnational preoccupations.

1 . Analysis in Britain

When war broke out in mid-1866, few could have been more understandably consternated than Colonel Edward Hamley, formerly the Staff College's Professor of Military History, who had just published *The Operations of War Explained and Illustrated*.⁹ Hamley's second edition claimed that 'much that he had written [was] illustrated by the incidents of the campaign', but 'a new [tactical] phase which had not been fully contemplated when the book was written' necessitated an update.¹⁰ Somewhat ironically, a year later the Franco-Prussian War brought a new set of lessons, to which Hamley responded in the third edition of 1872.¹¹ Careful cross-referencing of all three texts suggests that Hamley overlooked several of the Austro-Prussian War's key lessons.

Despite claims that Chapter V on 'Changes in Contemporary Tactics' had been 'in great part rewritten', many of the amendments seem somewhat cosmetic.¹² The updated chapter played down the significance of recent events as 'not radical ... only modifications of previously existing conditions'.¹³ Hamley's 1866 edition envisaged battalion columns advancing under cover of both skirmishers and terrain, pausing 300 yards from the enemy to reorganise, and then charging.¹⁴ By 1869 the chapter enumerated the advantages of both company and battalion columns, but did not compare the two.¹⁵ It also acknowledged that breech-loaders were deadly against an attacker at short range, but all it proposed in response was that the front ranks of a column might fire before the second line advanced through its intervals.¹⁶ It closed with the new conclusion that such manoeuvres would entail 'heavy loss, and ... very doubtful prospects of success' without 'assiduous and appropriate training'.¹⁷

⁹ *The Times*, 17 May 1866, 11; Edward Bruce Hamley, *The Operations of War Explained and Illustrated* 1st edn (Edinburgh and London: William Blackwood and Sons, 1866).

¹⁰ *The Times*, 2 August 1869, 8; Edward Bruce Hamley, *The Operations of War Explained and Illustrated* 2nd edn (Edinburgh and London: William Blackwood and Sons, 1869), vii.

¹¹ Edward Bruce Hamley, *The Operations of War Explained and Illustrated* 3rd edn (Edinburgh and London: William Blackwood and Sons, 1872).

¹² Hamley, *Second Edition*, viii.

¹³ *Ibid.*, 400.

¹⁴ Hamley, *First Edition*, 393–4.

¹⁵ Hamley, *Second Edition*, 406–8.

¹⁶ *Ibid.*, 401–2, 405–6.

¹⁷ *Ibid.*, 415–6.

Chapter V was far more comprehensively rewritten in the third edition, following the Franco-Prussian War, which Hamley called ‘more momentous [than the Austro-Prussian] in its events and its results ... rendering clear much that was unsettled’.¹⁸ The revised chapter began with a section contrasting the advance of columns ‘against the Austrians at Sadowa’ with the observations of ‘all reliable eye-witnesses of the war of 1870’ that advancing ‘columns, while under rifle fire, dissolved into swarms of skirmishers’, which he ascribed to the way in which defensive breech-loading rifle fire made attackers feel open order was ‘a necessary condition of any advance at all’.¹⁹ This exact phenomenon had, however, been highlighted in an anonymous Prussian pamphlet critiquing battlefield performance in 1866.²⁰ For the foremost British scholar of military history to overlook such an observation, despite English translations and notices of the pamphlet in British popular newspapers, suggests significant weaknesses in his research.²¹ A prize-winning essay on tactics was similarly dominated by the Franco-Prussian War: in its 67-item bibliography, only five related to the Austro-Prussian War or its immediate aftermath, none of which were translated until 1870.²² By contrast, five works on the Franco-Prussian War had already been translated by the time the essay was submitted in March 1872, and a further four before its publication in August.²³ Spiers’ claim that British ‘Commentators quoted liberally from ... translations of Continental works’ therefore elides a certain time-lag in this analysis.²⁴ Having failed to anticipate the result, observers appeared unwilling to explore its implications until after the confirmatory Franco-Prussian War.

That those engaged with military affairs took at least some interest in the war is illustrated by the acquisitions of the Royal United Service Institution. Its library first added short works like ‘A narrative of the war between Austria and Prussia, by a Spaniard’ and Lieutenant-Colonel Cooke’s pamphlet for the Topographical Office, and later longer works like the Prussian and Austrian official histories and books by military authors such as Colonels Rustow and Lecomte.²⁵ In 1868 the Royal United Services Institution (RUSI) also purchased a full set of 1:25000 models of the key battlefields from Berlin.²⁶ This gave its members a topographical advantage over those unable to undertake the kind of ‘summer ramble on the Continent’ in which ‘in six days the scenes of six different engagements may be visited’.²⁷

¹⁸ Hamley, *Third Edition*, vii.

¹⁹ *Ibid.*, 422–3.

²⁰ Anon., *Taktische Rückblicke Auf 1866* (Berlin: Ferdinand Dümmler, 1869).

²¹ Anon., *The Campaign of 1866: A Tactical Retrospect*, trans. by H.A. Ouvry (London: Mitchell & Co., 1870); *Volunteer Service Gazette*, 6 November 1869, 11 (from *The Times*) and 6 (from the *Saturday Review*).

²² Lieut. F. Maurice, *The System of Field Manoeuvres Best Adapted for Enabling our Troops to Meet a Continental Army* (Edinburgh and London: William Blackwood and Sons, 1872), ix–xv.

²³ The competition was announced ‘About a year ago’ (Maurice v); the exact reference is *The Times*, 12 August 1871, 8.

²⁴ Spiers, 247.

²⁵ *Journal of the Royal United Services Institution* (hereafter *JRUSI*), 10 (1867), xvi–xvii; 12 (1869), xvi–xviii, xxv, xxi.

²⁶ *JRUSI*, 12 (1869), xxv.

²⁷ *Evening Mail*, 23 August 1867, 6; *Army and Navy Gazette*, 14 August 1869, 3 (hereafter *ANG*).

Coupled with donations like a Guards captain's collection of fired and unfired Prussian, Austrian and Saxon ammunition, RUSI had a strong basis to study the conflict's tactics.²⁸

Nevertheless, RUSI discussions tended to focus on material aspects of Prussian battlefield victories – specifically, the needle-rifle – rather than tactical ones, perhaps influenced by the recent introduction of breech-loading rifles for British infantry. Early lectures set the tone by focusing almost entirely on the merits and flaws of the rifles themselves, overlooking the new tactics they might necessitate.²⁹ One evening saw practical demonstrations of both the Dreyse and the Chassepot ('the only one in England'), with the former heavily criticised as 'a clumsy rifle ... [not] one which you would have cared to see issued to our troops'.³⁰ There was little consideration of tactical questions in this context, even to suggest that Austrian *Stoßtaktik* might have flattered this elderly, inadequate breech-loader. It was only in the immediate build-up to the Franco-Prussian War that RUSI bore witness to a detailed examination of Prussian tactics, based not on the Austro-Prussian War but on post-war manoeuvres.³¹ If British military professionals struggled to understand the war's nuances, would semi-military magazines and weekly newspapers fare any better?

Reading chronologically through the *Army and Navy Gazette*, *Naval and Military Gazette*, or *Volunteer Service Gazette*, allows the historian to trace the evolution of attitudes towards the needle-rifle. Most were swept up in a first flush of enthusiasm, reporting relatively uncritically that an 'extraordinary and rapid series of Prussian victories' was due 'not so much to ... great bravery' but 'the superior efficiency of their weapons' or that 'victory has been won mainly by the breech-loader'.³² By the autumn, they were acknowledging that 'Prussia gained her victories not by the much-vaunted needle-gun but ... greater discipline and greater celerity of movement', or arguing it was too soon 'to attribute all the ill-success of Austria ... entirely to inferior firearms'.³³ This was little better than the non-military press, which in the summer of 1866 argued that Austria 'had ... one difficulty ... the needle-gun' or that 'the breech-loader has everywhere done the work', and only later developed nuance.³⁴

Military newspapers, and their wider ecosystem of correspondents and authors, did acknowledge that shifts in firearms technology required tactical changes. The newspapers themselves argued the necessity for 'looser formations, at least for the offensive'; 'a more flexible system of manoeuvres', with 'all interior movements ... [executed] in double time ... when concealed from the enemy's view', and predicted battles 'more of the character of great skirmishes, sustained by numerous bodies of men in extended order'.³⁵ Elsewhere, correspondents like W.P.J.

²⁸ *JRUSI* 10 (1867), xxviii.

²⁹ *JRUSI*, 11 (1868), 190.

³⁰ *JRUSI*, 11 (1868), 214–5, 195–6; c.f. John Latham's comments, *JRUSI* 9 (1866), 100.

³¹ *JRUSI*, 14 (1871), 214–9.

³² *Volunteer Service Gazette*, 7 July 1866, 10 (hereafter VSG); *ANG*, 7 July 1866, 1.

³³ VSG, 29 September 1866, 11; *Naval and Military Gazette*, 29 September 1866, 8 (hereafter NMG).

³⁴ *Bedfordshire Mercury*, 14 July 1866, 4; *Pall Mall Gazette*, 5 July 1866, 4; *Norwich Mercury*, 24 April 1867, 2; *Evening Mail*, 30 August 1867, 4.

³⁵ NMG, 11 August 1866, 8–9; VSG, 6 October 1866, 9; *United Service Magazine*, 1866 part 3, 169; *ANG*, 26 January 1867, 3–4.

advocated ‘a total alteration in our line ... a return to the old Roman system of intervals between the files’.³⁶ As early as October 1866 one military paper featured a highly detailed examination of Prussian tactics from fire to skirmishing.³⁷ Another highlighted ‘numerous German pamphlets’ covering ‘tactics and field exercises’, which it had ‘seen ... [both] in the original Teutonic ... [and] translated’.³⁸ In this respect the military press outstripped the popular, which only considered these questions immediately before the Franco-Prussian War.³⁹

With Austro-Prussian battles being dominated by infantry, the relative absence of cavalry and artillery in discussions of the war is understandable. It is, however, surprising that the artillery clash between Austrian rifled muzzle-loaders and Prussian rifled breech-loaders seems to have featured little in the British debate over the retention of the Armstrong rifled breech-loader.⁴⁰ The *Pall Mall Gazette*’s often reprinted military analysis criticised the Armstrong gun using domestic trials and committees rather than foreign conflict.⁴¹ Other analysis was similarly cursory: one newspaper maintained a broad stance that the Armstrong, though not perfect, was the best gun in Europe, while another decided there was ‘very little choice between the field artillery of the five Powers’, – ‘a question of officers and men more than guns’, but not of doctrine and tactics.⁴² *The Times*’ correspondent Henry Hozier reported that Krupp cannon ‘did not appear in action to make such good practice as the Armstrong guns did in China’, but offered no insight into the way in which they fought.⁴³ Elsewhere, commentators argued that the inability of rifled guns to deliver ricochet fire was a significant defect, without acknowledging the potential of percussion fused shells – potential soon to be demonstrated emphatically against entrenched French infantry.⁴⁴ Some commentary did highlight weaknesses in the policy of massing batteries rather than the tactic adopted to great success in the Franco-Prussian War of concentrating the fire of distributed batteries.⁴⁵ Nevertheless, even the most diligent reader of the British military press would have struggled to understand either the limitations of Prussian artillery in 1866, or its enhanced lethality in 1870.

Although the cavalry featured more frequently, opinions on its role were widely divided.⁴⁶ On the one hand, the *Army and Navy Gazette* concluded that ‘neither rifled ordnance nor the needle-gun has driven ... cavalry from the field’ and promoted ‘shoulder-scales, epaulettes, and cuirasses’ as personal armour for the

³⁶ VSG, 29 September 1866, 7.

³⁷ ANG, 13 October 1866, 10–11, 3 November 1866, 10.

³⁸ NMG, 18 May 1870, 7.

³⁹ *Evening Standard*, 14 July 1870, 3; *Pall Mall Gazette*, 21 July 1870, 3.

⁴⁰ Anthony J. Hampshire, ‘Continental Warfare and British Military Thought 1859–1880’ (PhD diss., King’s College London, 2005), 107, 110.

⁴¹ ANG, 24 November 1866, 13; NMG, 16 March 1867, 7.

⁴² ANG, 16 February 1867, 3, 21 November 1868, 1, 18 September 1869, 3, 28 May 1860, 2; VSG, 23 November 1867, 5 (taken from the *New St. Paul’s Magazine*).

⁴³ H.M. Hozier, *The Seven Week’s War II* (London: MacMillan, 1867), 200.

⁴⁴ ANG, 14 May 1870, 8, *JRUSI* XIV, 216.

⁴⁵ VSG, 13 November 1869, 4; *JRUSI* XIV, 217.

⁴⁶ Gervase Phillips, “‘Who Shall Say That the Days of Cavalry Are Over?’ The Revival of the Mounted Arm in Europe, 1853–1914’, *War in History* 18, 1 (2011), 14–18.

cavalry melee; on the other, the *Naval and Military Gazette* highlighted how infantry with breech-loaders no longer needed to form a square.⁴⁷ Hamley concurred at least partially, deleting a claim that ‘the *best* cavalry would generally break a line of infantry by a direct attack’.⁴⁸ He retained his belief however that infantry lines could repel cavalry only with secure flanks, and added the conclusion that battles would close with ‘the conflict of great bodies of horse’ as at Königgratz.⁴⁹ Hamley was not alone in being attracted by the spectacular charge of the Austrian cavalry: however, a more comprehensive post-Franco-Prussian War revision concluded that such flank attacks were impossible and deleted the Königgratz assertion.⁵⁰

British commentators also tended to overlook the diversity among the armies of the German Confederation. There were occasional acknowledgements of Federal performance: Dicey, for instance, noted that ‘the Bavarians and Württembergers fought extremely well’, while Chesney highlighted the resistance of the Bavarians and the *United Service Magazine* remarked on ‘the merits of the Federal troops’.⁵¹ Yet these scattered remarks underline how basic these understandings were – the *United Service Magazine* eliding stern Bavarian resistance with the underperformance of the mixed contingents of VIII Corps, for instance. Indeed, the difficulty of obtaining reliable information may be illustrated by the number of commentators who described Hanoverian triumph over the needle-rifle at Langensalza, where many of their opponents were Landwehr carrying muzzle-loaders.⁵²

Perhaps the main deficiency in British analysis of the conflict was the competition between two views of war: war as a rational, technological conflict, and war as an irrational, moral conflict in which the will to fight and the justice of a cause were critical. This had hampered earlier British approaches to the American Civil War, in which the Confederacy’s purported national unity and the moral effect of defending their homes from invaders was emphasised over the Union’s industrial and numerical superiority.⁵³ After the Austro-Prussian War, many commentators adopted a similar approach.

Dicey, for instance, had earlier highlighted that Denmark’s ‘fatal disadvantage’ in the Second Schleswig-Holstein War was ‘not being a homogeneous nation’.⁵⁴ Now, he played down the role of the needle-rifle – ‘not sufficient to account for the issue of the campaign’.⁵⁵ Instead, Prussians were ‘Physically ... stronger, stouter and more powerful’ and ‘mentally ... immeasurably superior to the mixed hordes of Croats and Bohemians and Hungarians arrayed against them’.⁵⁶ Elsewhere,

⁴⁷ ANG, 1 September 1866, 9; NMG, 6 June 1868, 9.

⁴⁸ *Operations First Edition*, 394–5.

⁴⁹ *Operations Second Edition*, 408, 412.

⁵⁰ VSG, 6 November 1869, 11; *Operations Third Edition*, 432–3.

⁵¹ *Battle-Fields of 1866*, 216; C.C. Chesney, ‘The Campaign in Western Germany’, *Blackwood’s Magazine* (January 1867), 76, 79; *United Service Magazine*, 1866 part 2, 572.

⁵² Chesney, 74, 82; ANG 28 July 1866, 6.

⁵³ Mark Bennett, ‘Popular Reactions to the American Civil War in the West Riding of Yorkshire’ (unpub. MA thesis, University of Warwick, 2013), 37–8.

⁵⁴ Edward Dicey, *The Schleswig-Holstein War*, vol. 2 (London: Tinsley Brothers, 1864), 39.

⁵⁵ *Battle-Fields of 1866*, 15–16.

⁵⁶ *Ibid.*, 16–17.

commentators contrasted Austria's 'heterogeneous and disaffected populations' with the Prussians – 'animated by one pervading spirit of loyalty and resolution'.⁵⁷ Such emotive rhetoric deployed as explanation tended to preclude detailed examinations of tactical performance.

2. Analysis in France

For France, learning half a lesson was almost as bad as learning nothing. When Königgratz dashed Napoleon III's hopes of territorial acquisition in return for brokering a settlement in Germany, the French military reacted quickly. Abandoning assault columns and rifled muskets in favour of breech-loading rifles and trenches was rational, causing heavy German casualties in 1870. Failure to recognise Prussia's tactical flexibility and the potential of Krupp artillery, coupled with strategic and operational French inadequacies, meant though that this partial response was not enough to deliver victory. How far was this official oversight replicated in the wider field of military literature?

Boguslawski's claim that 'French opinion' ascribed 'the victory over Austria ... wholly ... to the needle-gun' is not borne out by a more systematic analysis of military literature.⁵⁸ Military commentators credited the trope's popularity to laymen; research for this article detected it in pamphlets by 'a workman' or a short essay on 'the wonders of science'.⁵⁹ Nevertheless, the enterprising salesman who offered readers of the *Moniteur de l'Armée* 'Champagne à Aiguille modèle 1866' presumably banked on both the name 'needle-rifle', which 'seems to contain something unknown and mysterious', and the vivid impression the weapon had made.⁶⁰

French military writers themselves do seem to have been less immediately captured by the needle-rifle than their British counterparts. Indeed, they mocked 'the sudden infatuation of the English for a system which they would have scrapped and shredded a short time ago'.⁶¹ This perhaps reflected a less technical and more emotive approach to the art of warfare, as when they linked the needle-rifle's success not to higher casualties but 'the moral effect resulting from their [Prussian] confidence in the superiority of their weapon' or the 'terror [it threw] into the enemy ranks'.⁶² Those who acknowledged its mechanical effects often criticised the weapon as crude, or highlighted that such advantage would end when other powers adopted breech-loaders.⁶³

⁵⁷ *Evening Mail*, 30 August 1867, 4; VSG, 29 September 1866, 12.

⁵⁸ A. von Boguslawski, *Taktische Folgerungen aus dem Kriege 1870–1871* (Berlin, 1872), 9.

⁵⁹ Prince de Joinville, *Encore Un Mot Sur Sadowa* (Brussels: C. Muquardt, 1868), 12–13; Léopold Du Puy de Podio, *Les armes de guerre se chargeant par la culasse et le Fusil à aiguille prussien* (Paris: J. Corréard, 1866), 5; 'Un Artisan', *M. de Bismark* [sic] et *Le Fusil à Aiguille* (Lyon: Imprimerie du Salut Public, 1867), 78; Louis Figuier, *Les Merveilles de La Science* (Paris: Furne, Jouvet et Cie, 1869), 502.

⁶⁰ *Moniteur de l'Armée*, 21 November 1866, 4, 11 July 1866, 1. Hereafter MA.

⁶¹ Thomas-Anquetil, 'Les armes nouvelles', *Le Spectateur Militaire*, 3e ser. 5 (1866), 488. Hereafter SM.

⁶² Général baron d'Azémar, 'De l'esprit militaire en France,' SM 14 (1866), 371–2; Ferdinand de Lacombe, 'Operations militaires du nord de l'Allemagne', SM 5 (1866), 397–8. See also MA 15 May 1869, 3.

⁶³ Thomas Anquetil, 'Revue des armes à feu à l'Exposition universelle de 1867', SM 9 (1867), 129 for praise (and 'Les armes nouvelles' 474, 488 for his criticism); E. Odiardi, 'Etat de l'armement européen en 1866', SM 8 (1867), 246–7.

French observers also shared preconceptions about national identity and warfare; while the Austrian army had been ‘an incredible Babel of all the peoples of the Hindo-European race’, homogeneous France would be a tougher challenge for a Prussia ‘divided by mores, interests and religion’.⁶⁴

Despite this less technical approach, the French still surpassed British observers in their analysis of artillery’s effect. Even before taking translations into account, the quantity of French analysis easily outstrips that in Britain – even though it did not get to the bottom of the war’s events.⁶⁵ French authors highlighted the success of Austrian artillery and its ‘heroic firmness’, pointed out that Prussian ‘breech-loaded steel cannons could not bear comparison with Austrian artillery’, and overlooked Prussian doctrinal failings by blaming ‘material impossibilities’ rather than ‘its value and its energy’.⁶⁶ The *Conférence Régimentaire* on artillery did highlight that artillery reserves were too far back in the march order, yet showed a fundamental misapprehension about modern warfare by arguing that artillery should be used between 600 and 1200 metres.⁶⁷ Commentators, therefore, did little to foreshadow the upcoming disaster.

The French remained similarly optimistic in respect of the role of cavalry. A captain of heavy cavalry anticipated firearms increasing their battlefield capability, as ‘natural obstacles’ and ‘the emotion of combat’ made infantry musketry inaccurate.⁶⁸ Other analysts broadly agreed that, although breech-loaders demanded ‘more complete [cavalry] training, and a higher speed maintained for longer’, they should not ‘despair or even doubt the future destinies of the cavalry’.⁶⁹ Much wishful thinking was involved, such as when Ade argued that although the needle-rifle enabled even open-order skirmishers to repel cavalry, this could be remedied with artillery support.⁷⁰ Similarly, Erdnegel acknowledged ‘the power of long-range rapid fire’, but claimed successful charges were still possible though rarer and requiring combined arms support, while also praising the cavalry rear-guard action at Königgratz.⁷¹

French observers did, at least, acknowledge the significance of Prussian company columns and their manoeuvrability on the battlefield.⁷² Proposals advocated making the company the main tactical unit, improving the training of companies, or

⁶⁴ ‘Tactique allemande’, *SM* 4 (1866), 241–2.

⁶⁵ e.g. an extensive section from *Le Journal de l’Armée Belge*, republished in E. Testarode, ‘Revue de la presse militaire étrangère’, *SM* 11 (1868), 142–3.

⁶⁶ Capitane Puyau, ‘De la tactique des trois armes’, *SM* 19 (1870), 227–8; *Encore Un Mot*, 47–8; E. Erdnegel, ‘Etude sur la tactique de la cavalerie’, *SM* 16 (1869), 208.

⁶⁷ Lieutenant-Colonel Saunier, *Commission Des Conférences Régimentaires. Conférence Sur l’artillerie de Campagne. Son Emploi Dans La Guerre d’Allemagne de 1866* (Paris: J. Dumaine, 1869), 65, 68–9.

⁶⁸ *MA*, 26 January 1868, 2.

⁶⁹ Anon, ‘Revue bibliographique’, *SM* 12 (1868), 314.

⁷⁰ L. Ade, ‘Essai sur la tactique de la cavalerie’, *SM* 13 (1868), 348.

⁷¹ Erdnegel, ‘Essai sur la tactique de la cavalerie’, *SM* 17 (1869) 33; ‘Etude sur la cavalerie’, *SM* 12 (1868), 212, 215, 223–4. For other observers arguing that preparation would preserve the feasibility of the charge, see F. Dumas, *Réponse d’un officier inférieur à l’officier général, auteur de l’armée Française en 1867*, 4th edn (Paris: Henri Plon, 1867) 152–3.

⁷² Specifics of the formations appeared in ‘Tactique allemande’, 76–87.

prioritising skirmishing over close order.⁷³ These nonetheless faced serious opposition within the military press. Fighting in the Prussian style ‘would encourage disorder’, giving captains, subalterns and NCOs initiative with ‘the most dire consequences’.⁷⁴ It would be ‘wanting to fight blindly’, leaving only a ‘thin ribbon’ to face the enemy, suitable only against ‘demoralised troops’.⁷⁵ At best, the French could envisage fighting in half-battalions a third larger than Prussian companies, to preserve ‘the pearl of all solidity’.⁷⁶

Apart from the objections about devolving responsibility from battalion commanders, we may also detect less rational nationalist presumptions behind those who preferred larger formations. Some argued Prussian company columns were an attempt to ape the ‘mobility, individual initiative and daring’ which French battalions could achieve without the ‘serious flaw of a fractionation pushed to exaggeration’.⁷⁷ Others argued the bayonet was the quintessentially French weapon – even a rifle ‘ten times faster’ could not ‘change the temper of the French soldier and prevent the bayonet from being his main argument’.⁷⁸ In this case, open order formations intended to maximise fire would simply see soldiers revert unordered to *furia francese*. Instead of dispersing, French commentators suggested constructing steel or aluminium shields, ‘human size, and bulletproof at any distance’, worn by ‘the most robust’ men who would be placed at the edges of an attack column to deflect enemy bullets as their battalion charged.⁷⁹

Ending on such outlandish suggestions, even highlighting German counterparts by way of fairness, perhaps does disservice to other more grounded interpretations.⁸⁰ The French were certainly unfortunate that, unlike other nations, their post-war evaluations were put to the test. Nevertheless, key factors were either missed entirely or not converted into official doctrine. Would the states of Germany fare any better?

3. Analysis in Prussia, Austria, and other German states

Probably the most notable unofficial German-language work on the conflict was the *Taktische Rückblicke auf 1866*. With three editions in three months, facilitated by rapid translations into both English and French, both this work and its sequel

⁷³ ‘X ... V ...’, ‘Armement nouveau et modifications de la tactique’, *SM* 17 (1869), 369–70; Anon. ‘Instruction de la compagnie’, *SM* 15 (1869), 450; T. Henry, ‘Essai sur la tactique élémentaire de l’infanterie’, *SM* 12 (1868), 388.

⁷⁴ Capitane Puyau, ‘Réflexions sur la tactique, inspirées par les résultats de la campagne de 1866 en Allemagne’, *SM* 18 (1869), 35.

⁷⁵ De Beaurepaire, ‘Quelques réflexions sur la tactique’, *SM* 18 (1869), 204–5.

⁷⁶ Charles Deschamps, *Conférence sur la Tactique de l’Infanterie* (Paris: J. Dumaine, 1870), 36–8.

⁷⁷ M. Heintz, *Conférence Sur La Tactique de l’infanterie Prussienne Pendant La Campagne de 1866* (Paris: J. Dumaine, 1869), 31–2.

⁷⁸ Général Baron d’Azemar, ‘Combats à la baïonnette’, *SM* 14 (1868), 239–40; Anon, *La Baïonnette Française et Le Fusil à Aiguille* (Paris: Librairie du Petit Journal, 1867), 5–6; ‘Tactique allemande’, 241–2.

⁷⁹ O. Goepf, ‘Sur la colonne d’attaque depuis les nouvelles armes à tir rapide’, *SM* 17 (1869), 64–5.

⁸⁰ Prof. Dr. med. Postl, *Die Schutzmauer gegen das Zündnadelgewehr und die Zukunft der Kriegführung* (Munich: Louis Finsterlin, 1866), 18.

were read and cited widely across Europe.⁸¹ Indeed, they were sufficiently influential to merit a semi-official response – ostensibly from Lieutenant-Colonel Bronsart von Schellendorf of the Prussian General Staff, but rumoured to be ghost-written by Moltke the Elder.⁸²

Its analysis was highly acute, identifying the chaos of the modern battlefield caused by ‘individual bodies fighting independently’ with reserves pressing forward into the fighting line rather than waiting for a decisive moment.⁸³ This was both natural – open order was best fitted to the breech-loader’s strengths – and desirable, maximising extensive Prussian marksmanship training.⁸⁴ The author proposed to remedy the disconnect between the drill-book and the needs of the battlefield by de-emphasising the bayonet and column.⁸⁵ He advocated the abolition of formations larger than companies and the replacement of columns with lines which would fire while advancing in open order and close up within 100 paces of the opposition.⁸⁶

Nevertheless, these proposals provoked a response from the highest echelons of the Prussian army. Bronsart von Schellendorf played down the introduction of the breech-loader, which did ‘not necessarily render the old tactics obsolete’, and denied that the new art of war represented as great a gulf as between the Seven Years War and the French Revolutionary Wars.⁸⁷ He denied that the battalion was obsolete as a tactical unit, and dismissed the open-order line as ‘a skirmishing formation which the Prussian infantry rejected some twenty years ago’.⁸⁸ Instead, he vindicated the existing formations of the Prussian army: ‘a strong line of skirmishers, with a closed support in the rear’, which could meet the enemy with ‘a volley from the supports pushed forward into the line of fire, followed by a bayonet charge’.⁸⁹ The army of the newly-united Germany maintained this Prussian conservative approach towards the use of columns on a battlefield swept by artillery and breech-loading rifles.⁹⁰

⁸¹ Hirtenfeld’s *Militär-Zeitung*, 12 February 1870, 108 (hereafter HMZ). For the translations, *Tactical Retrospect*; Anon., *Etude sur la Tactique à propos de la Campagne de 1866*, trans. by Capt. Furcy Raynaud (Paris: J. Dumaine, 1869). For some of the citations, *United Service Magazine* 1870 Part 1, 576, 587; HMZ 15 May 1869, 339; *Allgemeine Militär-Zeitung*, 17 April 1869, 121 (hereafter AMZ).

⁸² Bronsart von Schellendorf, *Ein Rückblick auf die ‘Taktischen Rückblicke’ und Entgegnung auf die Schrift ‘Ueber die preußische Infanterie 1869’* (Berlin: Ernst Siegfried Mittler und Sohn, 1870); *Edinburgh Review*, October 1870, 493.

⁸³ Bronsart von Schellendorf, *Precis of a Retrospect on the Tactical Retrospect: And Reply to the Pamphlet on the Prussian Infantry of 1866*, trans. by H.A. Ouvry (London: W. Mitchell & Co., 1871), 5–6. For the benefit of non-German speakers, references have been given to translations rather than the original text. Translations have been cross-referenced to the original text to ensure their accuracy.

⁸⁴ Bronsart von Schellendorf, 7, 9.

⁸⁵ Anon., *On the Prussian Infantry* 1869, trans. by H.A. Ouvry, 2nd edn (London: Mitchell & Co., 1870), 9.

⁸⁶ *Ibid.*, 11, 28, 42, 49.

⁸⁷ Bronsart von Schellendorf, 7.

⁸⁸ *Ibid.*, 7, 12–13.

⁸⁹ Bronsart von Schellendorf, 15.

⁹⁰ Steven D. Jackman, ‘Shoulder to Shoulder: Close Control and “Old Prussian Drill” in German Offensive Infantry Tactics, 1871–1914’, *Journal of Military History* 68, 1 (2004), 83–4.

Indeed, the *Retrospect* was relatively advanced in its willingness to demote shock tactics. Captain Laymann suggested that troops could attack in skirmish order, but they must 'be followed by columns of attack' for 'moral support ... [and a] final decisive shock, should the attack of the skirmishers fail'.⁹¹ Julius Campe praised larger half-battalion masses, though these 'could be detrimental ... if ... faced with a skilful enemy armed with breech-loaders', and criticising company columns for causing 'too great fragmentation'.⁹² Though supporting tactical flexibility, he also disapproved of the Prussian lack of fire discipline and emphasised the necessity to 'seek the decision in a resolute bayonet attack'.⁹³ Both Bronsart von Schellendorf's semi-official response and these less official commentaries tend to contradict Samuels' belief that Prussia was inclined to cross the dangerous ground only to conduct a standard firefight.⁹⁴

Prussian authors generally assumed that tactical forms must derive from the characteristics of the soldiers operating them, with temperament being most frequently cited. 'Somewhat dull and quiet' North German soldiers suited open order and relative lack of supervision: 'unless the difference of temperament be taken into account', other armies could not hope to adopt these tactics.⁹⁵ Hungarians, Italians and Bohemians lacked 'German comradeship', while French volubility, precluding careful rifle practice, meant they 'will never fight Lunby'.⁹⁶

Nevertheless, Prussian authors tended not to consider if tactics could be framed to take advantage of weaknesses in an opponent's system or explore how Prussian company columns had performed on the West German battlefields against alternative tactical forms. One rare exception concluded results against the Austrians were better than those elsewhere, which the author concluded might result in part from 'the opponent's fighting style'.⁹⁷ Such lack of reflection is surprising, in light of earlier speculation about the tactical requirements of fighting the French.⁹⁸

Prussian analysis did at least recognise that both tactics and weapons were the necessary components of victory in 1866.⁹⁹ The piece that was most enthusiastic about the needle-rifle came from 'A Landwehr Officer', which may be excused on grounds of limited military experience.¹⁰⁰ Colonel von Löbell contrasted initial enthusiasm for the rifle with the greater importance of 'higher intellectual ability,

⁹¹ Captain Laymann, *About Tactics*, trans. by E.M. Jones (London: Harrison, 1871), 16.

⁹² J. Campe, *Ueber Die Ausbildung Der Kompagnie Für Das Gefecht*, 2nd edn (Berlin: Ernst Siegfried Mittler und Sohn, 1868), 111–12.

⁹³ Campe, 40.

⁹⁴ Martin Samuels, 'Command or Control?: Command, Training and Tactics in the British and German Armies, 1888–1918' (PhD diss., University of Manchester, 1992), 145.

⁹⁵ *Tactical Retrospect*, 16–17; Laymann, 4.

⁹⁶ G. von Glasenapp, *Preussen Feldzug 1866 vom militärischen Standpunkt*, 2nd edn (Berlin: Hempel, 1866), 96; Heinrich Blankenburg, *Der Deutsche Krieg von 1866* (Leipzig: F.A. Brockhaus, 1868), 541–2.

⁹⁷ *Militär-Wochenblatt*, 52 (1867), 355–7.

⁹⁸ *A Military Memorial by Prince Frederick Charles of Prussia* (London, William Ridgway, 1866).

⁹⁹ Paul Fox, '"A New and Commanding Breed": German Warriors, Tanks and the Will to Battle', *War & Society* 30, 1 (2011), 7–9.

¹⁰⁰ 'einem Landwehr-Offizier', *Der Kriegsbegebenheiten Des Jahres 1866 in Deutschland Und Italien* (Berlin: A. Sacco, 1866), 24, 119–20, 124.

courage and bravery'.¹⁰¹ Other authors, meanwhile, highlighted 'the training and selection of intelligent and independent soldiers', training and tactical superiority, and 'tactical skill and moral preponderance'.¹⁰² Even the 'Landwehr Officer' concluded by putting 'the personal bravery and dexterity of the Prussian soldier' on a par with the needle-rifle.¹⁰³

Authors from other German-speaking states also managed to overcome the needle-rifle's moral shock. Except the *Allgemeine Militär-Zeitung* – impressed enough with the 'panicked terror' of 'otherwise brave Austrians, surely insurmountable in the melee' to commission a special treatise on the weapon – early opinions tended to argue the rifle was only a component of Prussian victory.¹⁰⁴ Weapons drew significance 'from the organisation, training and spirit that determine their use'; 'the claim that the decision can only be found in the quality and handling of handguns' was discounted.¹⁰⁵ Austrian commentators similarly emphasised that there were causes beyond the needle-rifle, suggesting their infantry could have fired at longer range or double-loaded their rifles to negate its advantage.¹⁰⁶ They also acknowledged that *Stoßtaktik* – 'the impetuous senseless going out with the bayonet' – was to blame.¹⁰⁷ Analysts in German secondary states similarly managed to link *Stoßtaktik* to the 'disproportionately large losses suffered by the Austrians' – in some cases by direct comparison with the West German theatre.¹⁰⁸

These two bodies of opinion differed in respect of nationality. German assumptions that 'armies with southern blood flowing in their veins' could never master 'calm, yet lightning-fast ... firing at command' mirrored Prussian opinions.¹⁰⁹ Austrian views varied more dramatically: while one author placed 1866 in a lineage of Austrian defeats whose 'permanent misfortune' stemmed from a disconnect between populace and government, elsewhere the legacy of 'Eugene, Loudon and Archduke Karl' and the Battle of Aspern were cited to illustrate that an army forged of different nationalities could beat even the greatest generals.¹¹⁰

Austrian writers also debated the tactical reforms required by modern battlefields.¹¹¹ Though their extent varied, even the mildest suggestion – discounting 'any major changes' – still saw *Stoßtaktik* as an aberration and argued bayonet attacks required sufficient preparation by fire.¹¹² A 'practical soldier', by contrast,

¹⁰¹Oberst H. von Löbell, *Des Zündnadelgewehrs Geschichte und Konkurrenten* (Berlin: Ernst Siegfried Mittler und Sohn, 1867), 1–3.

¹⁰²*Prussian Infantry*, 7; Glasenapp, 97; Blankenberg, 234.

¹⁰³*Kriegsbegebenheiten*, 120–1.

¹⁰⁴AMZ, 14 July 1866, 218.

¹⁰⁵AMZ, 16 June 1866, 186; 11 August 1866, 254.

¹⁰⁶Richard Gelich, *Briefe Eines Alten Soldaten Über Den Krieg Im Norden Und Der k.k. Österreichischen, Die k. Preussische Und Die k. Italienische Armee* (Vienna: Carl Gerold's Sohn, 1867), 12; HMZ, 27 August 1867 539; J. Nosinich, *Rückblicke Auf Den Krieg 1866* (Vienna: M. Auer, 1866), 238.

¹⁰⁷HMZ, 23 January 1867, 45, 11 July 1866, 466; Gelich, 12–13.

¹⁰⁸AMZ, 1 September 1866, 274; 8 September 1866, 282; 16 February 1867, 51.

¹⁰⁹AMZ, 13 July 1867, 221–2.

¹¹⁰E. Bartels von Bartberg, *Oesterreich und sein Heer* (Leipzig: Otto Wigand, 1866), 3; HMZ, 1 May 1867, 272.

¹¹¹Dredger, xv–xvi.

¹¹²HMZ, 27 April 1867, 263–4; Dredger, 12–13, 16–18.

claimed that ‘the “tactics” of the Austrian foot troops have made essentially no progress, regardless of the fact that the company column line was prescribed as the normal position’.¹¹³ Though he cited the *Tactical Retrospect* as the justification for his arguments, his claims that in 1866 Austria used ‘thinned out ... skirmisher lines’, his suggestion that they abandon the line altogether in favour of volley fire from columns, and his advocacy of the battalion column to maintain ‘tactical order’, seem oddly inconsistent with that work’s recommendations and historiographical trends alike.¹¹⁴

German writers in secondary states, however, seem to have been more abreast of battlefield tactical developments. The *Allgemeine Militär-Zeitung* noted the deaths of three Hessian officers who had traded suggestions on company columns before the war.¹¹⁵ In an extended and controversial analysis, one author suggested the company columns of Grand Ducal Hesse rather than Prussia as a model for a future German army.¹¹⁶ Some correspondents advocated the potential of half-battalion masses, while others criticised them for dividing ‘the living body’ of the company column system into ‘two halves, which – like the Siamese twins – each claim individual independence without ... the justification of an accomplished personality’.¹¹⁷ For the most part, it was the company column which dominated the thought of these authors, combining the advantages of line and column, offering the ideal characteristics of flexibility and concealment for the modern battlefield dominated by the breech-loader.¹¹⁸ Yet the emphasis on ‘good and fast-firing handguns ... used at short distance’ to ‘ensure the success of the last minute bayonet attacks’ foreshadowed the slaughter to be inflicted on the combined German armies by Chassepot rifles on battlefields across France.¹¹⁹

The bulk of German-language discussion on the role of cavalry in future warfare was divided between Prussia and Austria: somewhat strangely, views in Austria seem in hindsight to have been more forward-thinking. Granted, Johann Nosinich envisaged a glorious cavalry charge against ‘the head of the [Prussian] Crown Prince’s 2nd Army’ resulting in the capture of ‘a good number of artillery pieces’, and proposed ‘a light chest and back cuirass made of better steel’ for the heavy cavalry.¹²⁰ Nevertheless, a ‘Practical Soldier’ considered breech-loaders to have ended ‘the time of brilliant cavalry attacks’ on even ‘half prepared’ infantry, and correspondents to Hirtenfeld’s *Militär-Zeitung* argued the cavalry was ‘too numerous for the current wars’ or ‘cannon fodder’ when *en masse*.¹²¹

¹¹³Anon., *Die Neue Taktik Der Fusstruppen* (Wien: Carl Gerold’s Sohn, 1869), 7.

¹¹⁴*Die Neue Taktik* 3, 8, 14–15, 39; Anon., *Zur Taktik mit Hinterladern und gezogenen Kanonen*. (Prag: A.G. Steinhauser, 1867), 21–2.

¹¹⁵AMZ, 15 December 1866, 398–9.

¹¹⁶AMZ, 26 October 1867, 338–41; 3 November 1867, 346–8; 21 March 1868, 91–3.

¹¹⁷AMZ, 16 February 1867, 51; 13 July 1867, 221; 21 August 1869, 267; for dissenters, 4 September 1869, 284.

¹¹⁸AMZ, 1 August 1868, 243; 5 October 1867, 316; 12 October 1867, 323.

¹¹⁹AMZ, 27 May 1869, 99.

¹²⁰Nosinich, 168, 240.

¹²¹HMZ, 9 March 1867, 154; 29 September 1866, 659.

In Prussia, however, only Captain Laymann suggested that the breech-loading rifle meant that 'our infantry shall cease to have any fear of cavalry' which it could, 'under any circumstances, repulse ... by a rapid and well-aimed fire',¹²² The *Tactical Retrospect* still considered it possible for a lightened cavalry to use 'trenched and broken ground' to approach, then 'throw themselves through gaps in the enemy's line on their reserve' to spread 'terror and consternation', or to find 'their harvest ... where the order of the infantry is broken'.¹²³ Elsewhere we find similar suggestions that cavalry can still defeat 'demoralised Infantry' or formations disordered by lengthy combat.¹²⁴ 'The moments for the cavalry to attack have still remained the same', concluded one author, 'but we have to be more careful with them'.¹²⁵

Comparing France and Prussia here provides a significant insight into the cavalry debate in the late nineteenth century. Wawro contrasted the Prussians, 'a uniquely modern cavalry force' geared towards 'restless scouting and skirmishing', with the 'massed, gaily uniformed heavy squadrons' of the French, 'determined to ride right through' enemy firepower.¹²⁶ Phillips, however, highlighted a common willingness across Europe for 'experienced soldiers ... to challenge the predictions of cavalry's demise as a battlefield arm.'¹²⁷ Looking outside the realm of government responses to the views of observers and commentators supports Phillips in identifying considerable common ground in respect of the cavalry's continued role in delivering shock via the charge, however divergent the tactical responses at the national level may have been.

The lessons of the war in their relation to artillery were more mixed among the Austrians, perhaps as the one arm in which the nation was able to take pride. 'Superior to the enemy in ... effectiveness and precision, flexibility and greatness of use', with 'nothing in this year's campaign that would have detracted from her glory', as acknowledged by the victorious Prussians, it was perhaps tempting to allow the artillery to rest on its laurels.¹²⁸ Where changes were proposed, these were in exactly the wrong direction: commentators came to 'doubt the excellence' of the rifled gun, proposing the reintroduction of a proportion of smoothbore artillery.¹²⁹ 'An Infantryman' blamed this on the writings of 'Arkolay', a pseudonymous Saxon lieutenant whose significance in Germany and Austria was as marked as his complete lack of impact elsewhere in Europe.¹³⁰

Arkolay's argument was that rifled guns had destroyed the 'great principle' of combined three-arms tactics, refined in the Napoleonic period, as the field artillery

¹²²Laymann, 28.

¹²³*Tactical Retrospect*, 66–7; *Prussian Infantry*, 83.

¹²⁴Kraft, Prinz zu Hohenlohe-Ingelfingen, *On the Employment of Field Artillery in Combination with the Other Arms*, trans. by F.C.H. Clarke (London: W. Mitchell & Co., 1872), 4.

¹²⁵L. von Besser, *Die preußische Kavallerie in der Campagne 1866* (Berlin: Alexander Dunker, 1868), 213.

¹²⁶Wawro, *Franco-Prussian War*, 61–3.

¹²⁷Phillips, 16.

¹²⁸HMZ, 3 October 1866, 668; 22 December 1866, 854; 3 April 1867, 207.

¹²⁹Bartels von Bartberg, 11; Nosinich, 168; HMZ 12 August 1868, 527.

¹³⁰HMZ, 13 April 1870, 230; see also extensive discussion on 25 July 1868, 482–4; 29 July 1868, 491–2; 20 February 1869, 132–3; 26 January 1870, 58–9; 5 February 1870, 8–9.

had ‘tactically declared that it had renounced any effective participation in close combat’.¹³¹ Only smoothbores such as those of Bavaria had registered ‘exemplary achievements’; Austrian artillery had performed well because it was ‘tactically much closer to smoothbore guns’; Prussian smoothbore artillery, disadvantaged by having the ‘maxim of rifled guns, that of long ranged combat’ imposed on it, had at least wasted less ammunition than the breech-loaders.¹³² Direct responses to ‘Arkolay’ showed at least a degree of perspicacity in ascribing artillery’s lower effectiveness to ‘the emergence of the individual to a certain degree of independence’ and ‘the wise use of terrain against the increased effect of weapons’, or the fact that tactics for rifled artillery would take time to evolve.¹³³ Elsewhere, more mainstream observers noted similarly that smoothbores were often more effective under certain conditions, but determined instead that careful attention to doctrine could overcome these flaws.¹³⁴

Prussian interpretations of the conflict, meanwhile, were generally realistic but perhaps insufficiently critical. The official *Militär-Wochenblatt* identified failings in ‘the evolution and manoeuvring of the batteries’, but while it highlighted ‘many voices’ accusing the artillery of failing to secure an advantage over the Austrians as it should, it declined to enter ‘into a discussion about the correctness or inaccuracy of this assertion’, instead maintaining ‘it will certainly not harm our artillery if it is continually trying to improve itself’.¹³⁵ Less official interpretations could be more scathing: Captain Theodor May blamed the artillery for having ‘planted themselves here and there among the reserve’ with ‘insufficient tactical education’, while Captain Laymann highlighted slowness to enter the battlefield, firing at long range due to ‘exaggerated notions as to the power of rifled guns’, and ignorance or indifference about ‘the value of combined action of the different arms’.¹³⁶ There was little criticism for the material used, and praise for the Austrians tended to focus on their ‘extreme bravery’ or ‘precision in firing’ rather than being extended to their weapons.¹³⁷ Above all, proposals for its improvement tended to focus on the need for ‘concentrated action of great masses of artillery’ at ‘the decisive point of the battle field’.¹³⁸ In the results of Sedan, these prescriptions were thoroughly vindicated.

4. Conclusions

Unfortunately, Prussia’s high-quality evaluation of future artillery doctrine was not consistently replicated elsewhere. Some failings in tactical evaluation – such as the

¹³¹ ‘Arkolay’, *Die Taktik der Neuzeit vom Standpunkt des Jahrhunderts und der Wissenschaft* (Darmstadt; Leipzig: Eduard Zernin, 1868), 2, 6.

¹³² *Ibid.*, 299, 282–3.

¹³³ ‘Felix’, *Arkolay’s Appell an Die Denker in Den Heeren* (Wien: L.W. Seidel und Sohn, 1869), 27; ‘H.G. Th’, *Anti-Arkolay: kritische Untersuchung über Gefechts-Wirkung und Gefechts-Thätigkeit der heutigen Feldartillerie* (Ulm: Krick, 1869), 103, 109, 111.

¹³⁴ AMZ, 23 February 1867, 58–9; 4 May 1870, 140.

¹³⁵ *Militär-Wochenblatt*, 23 October 1867, 632.

¹³⁶ *Tactical Retrospect*, 42, *Prussian Infantry*, 94; Laymann, 20–2.

¹³⁷ ‘Landwehr-Offizier’, 123–4; Blankenburg, 269.

¹³⁸ *Tactical Retrospect*, 54; Hohenlohe-Ingelfingen, 14.

reluctance to acknowledge the changing role of cavalry on the battlefield – can be identified across Europe. This was, however, due less to the hegemony of ideas translated and communicated across borders, as to a standard set of assumptions replicated in each nation. Such standard assumptions included the role of national character in laying down the framework in which tactics operated. Though Chassepot fire belied earlier blithe assumptions that ‘The French will never fight Lunby’, it was not long before they returned to tactics of *élan*.

We can, though, identify certain national peculiarities in the responses to the war. British authors were unusual in their focus on the technological factor of the needle-rifle, yet rarely considered respective merits of artillery materiel during the war – despite extensive tests on their own new muzzle-loading artillery.¹³⁹ The interaction of Austrian *Stoßtaktik* and Prussian breech-loaders were detected in Austria and German secondary states, perhaps as a result of direct battlefield experience. Meanwhile, the flexibility of Prussian *Auftragstaktik* and the initiative evidenced by even NCOs failed to extend to a consideration of whether tactics could be deliberately crafted to fit a potential opponent.

Looking at commentators – those without institutional support, but also without overt constraints on what they could propose – sets the analytical capacity of state actors in a more appropriate context. The historian can often be tempted to compare these to a hindsight-influenced ideal, whereas these peer comparisons tend to prove more forgiving. Indeed, in some respects it strengthens the reputation of the Prussian high command and the Prussian officer corps as a whole. Their analysis fell short in some cases: for instance, though the *Tactical Retrospect* diagnosed the failings at the heart of Prussian infantry tactics, the General Staff actively sought to play down this interpretation. Yet in other areas such as artillery tactics, they diagnosed and resolved issues that few commentators – let alone other powers – identified.

In all cases, however, the tactical nuances of the war were insufficiently explored. The eye-catching defeat of the Austrians overshadowed potentially more fruitful illustrations from the West German theatre, or even the potential risks of close-order company columns advancing against breech-loaders. Rapid and stunning victories were frequently accompanied by slow and partial analysis. As a result, the same British popular press which anticipated Austrian victory or a long and bloody war in 1866 entered the Franco-Prussian War suggesting ‘no man could foresee’ a result which was ‘impossible to forecast’.¹⁴⁰

Notes on contributor

Dr Bennett’s expertise lies in the global history of war. His doctorate, completed at the University of Durham in 2018, explored the way in which mid-Victorian Britain received the events of international conflicts, and the effect these conflicts had on domestic understandings of concepts like race and democracy.

¹³⁹‘Report of the Special Committee on M.L. v. B.L. Field Guns’, *Parliamentary Papers* 1871 (C. 283).

¹⁴⁰*Hull Packet*, 23 July 1870, 8; *Staffordshire Sentinel*, 16 July 1870, 4; *Standard*, 12 July 1870, 5.

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