

## **The Counter Blasters: Canadian Counter-Battery Fire during the Battle of Hill 70**

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“A killing by artillery.”<sup>1</sup> That is how General A.G.L. McNaughton, the commander of First Canadian Army in the Second World War and the Canadian Corps’ counter-battery staff officer (CBSO) during the Great War, described the Battle of Hill 70 (15-18 August 1917) to the writer of the British official history of the First World War. Unlike better known Canadian battles of the Great War, such as Second Ypres, Vimy, and the Hundred Days, there has been little written on the Battle of Hill 70.<sup>2</sup> This is unfortunate, since Hill 70 was Canadian Lieutenant-General Sir Arthur Currie’s first battle as commander of the Canadian Corps, and as he noted in his personal diary, Hill 70 “was altogether the hardest battle in which the Corps has participated [...] It was a great and wonderful victory.”<sup>3</sup> Thorough planning, good staff work, extensive training, and lengthy preparations all contributed to this victory. During the Great War, the guns dominated the battlefield. And the Hill 70 battlefield was no exception.<sup>4</sup> Without the effective counter-battery (CB) programme planned and executed by then Lieutenant-Colonel McNaughton, the corps’ CBSO, the German guns would not have been silenced and the infantry would not have been able to secure the heights overlooking Lens that afforded Canadian forward observation officers (FOO) and machine gunners excellent fields of observation and fire to defeat the counterattacking Germans. This essay examines how the CB battle, won by McNaughton and his gunners, contributed to the overall Canadian victory at Hill 70.

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<sup>1</sup> Quoted in G.W.L. Nicholson, *Canadian Expeditionary Force, 1914-1919: Official History of the Canadian Army in the First World War* (Montreal, Kingston, London, and Chicago: McGill-Queen’s University Press, 2015), 287.

<sup>2</sup> Fortunately, a group of Canada’s leading military scholars have collaborated to write a volume that fills this gap in the historiography of the First World War. Douglas E. Delaney and Serge Durflinger, eds., *Capturing Hill 70: Canada’s Forgotten Battle of the First World War* (Vancouver and Toronto: UBC Press, 2016).

<sup>3</sup> Quoted in Nicholson, *Canadian Expeditionary Force, 1914-1919*, 292.

<sup>4</sup> Tim Cook, “The Fire Plan: Gas, Guns, Machine Guns, and Mortars,” in Delaney and Durflinger, eds., *Capturing Hill 70*, 103-136.

A battle of national importance to Canada, Hill 70 was conceived as merely a diversionary attack. Field Marshal Sir Douglas Haig, Commander-in-Chief of the British Expeditionary Force (BEF), issued orders on 7 July 1917 to General Sir Henry Horne's First Army to seize the coal-mining town of Lens and threaten an advance on Lille. Haig intended for this operation to prevent German troops from being transferred north to counter his Flanders offensive.<sup>5</sup> Horne, in turn, tasked Currie and the Canadian Corps with executing this operation. Instead of fighting through the rubble-strewn streets of Lens, overlooked by the heights of Hill 70 to the north and Sallaumines Hill to the southwest, Currie proposed seizing Hill 70.<sup>6</sup> He reasoned that the Germans would not allow the Allies to control the hill and would relentlessly counterattack until they had dislodged the Canadians.<sup>7</sup> To Horne's satisfaction, Currie proposed ordering the 1<sup>st</sup> and 2<sup>nd</sup> Canadian Divisions to attack and quickly seize the high ground, while the 4<sup>th</sup> Canadian Division feinted in front of Lens and Avion, supported by machine guns and artillery pieces to slaughter the waves of counterattacking Germans.<sup>8</sup> All with the aim of attriting German forces.

The artillery had a vital role in the fire plan, and Brigadier-General E.W.B. Morrison, the general officer commanding Royal Artillery (GOC RA) of the Canadian Corps, and Major A.F. Brooke, his senior artillery staff officer and later Chief of the Imperial General Staff and titled Lord Alanbrooke, prepared an extensive artillery programme. Morrison assembled the field guns from the four Canadian divisional artilleries (CDA), the 46<sup>th</sup> Divisional Artillery, two army field brigades, and a number of detached batteries – a remarkable number of pieces considering Hill 70 was a diversionary attack. Morrison instructed Brigadier-General R.H. Massie, commander of the Canadian Corps heavy artillery, to organize his guns into three CB groups and three trench destruction groups.<sup>9</sup> The three heavy artillery

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<sup>5</sup> Nicholson, *Canadian Expeditionary Force, 1914-1919*, 284.

<sup>6</sup> First Army Order No. G.S. 658/4(a), 10 July 1917, appended to War Diary (WD) Canadian Corps – General Staff, July 1917, File 11, Vol. 4815, Record Group (RG) 9-III-D-3, Library and Archives Canada (LAC).

<sup>7</sup> Nicholson, *Canadian Expeditionary Force, 1914-1919*, 285.

<sup>8</sup> Canadian Corps Operation Order No. 139, 17 July 1917, appended to WD Canadian Corps – General Staff, July 1917; Canadian Corps Operation Order No. 140, 26 July 1917, *Ibid*; and Canadian Corps Operation Order No. 141, 14 August 1917, appended to WD Canadian Corps – General Staff, August 1917, File 12, Vol. 4815, RG9-III-D-3, LAC.

<sup>9</sup> Artillery Order No. 52, 20 July 1916, appended to WD GOC RA Canadian Corps, July 1917, File 504, Vol. 4957, RG9-III-D-3, LAC.

groups (HAG), assigned to McNaughton for CB work consisted of the 15<sup>th</sup> HAG, 50<sup>th</sup> HAG, and 2<sup>nd</sup> Canadian HAG. In all, this amounted to 111 guns of various calibres from 60-pounders to 9.2-inch howitzers.<sup>10</sup> McNaughton also had the super-heavy pieces of the 26<sup>th</sup> HAG, one 15-inch howitzer and four 12-inch howitzers on call.<sup>11</sup> The operation was going to be ammunition intensive. Morrison allocated 44,000 for the 60-pounders, 140,000 for the 6-inch howitzers, 38,000 for the 8-inch howitzers, 35,000 for the 9.2 howitzers, and 750 rounds for the 6-inch Mk. VII naval guns.<sup>12</sup> Furthermore, 7,000 gas shells were distributed to the 60-pounders and 8,000 to the 4.5-inch howitzers, with the majority to be used for CB.<sup>13</sup>

By the summer of 1917, the BEF had the doctrine and command and staff arrangements to win the artillery duel. Prior to the First World War, the Royal Artillery has paid little attention to the doctrine and procedures of CB fire. The 1909 *Field Service Regulations*, which codified the operational principles of the British army, contain no reference to CB fire, and the 1914 *Field Artillery Training*, the Royal Artillery's manual to govern training and conduct in war, only briefly examines the subject.<sup>14</sup> However, it quickly became apparent that silencing the enemy guns was a necessary precursor to breaking the stalemate that existed on the Western Front. By 1917, CB was no longer a secondary duty assigned to flanking artillery units. The artillery instructions, issued by the GOC RA, stressed the importance of CB fire to the outcome of the battle.<sup>15</sup> Following the Battle of the Somme (July-November 1916), the corps headquarters expanded. Added to the GOC RA's staff was the CB office, comprising a lieutenant-colonel (CBSO), a staff captain, and a number of clerks and orderlies.<sup>16</sup> Furthermore, the intelligence officers

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<sup>10</sup> Counter Battery Office Canadian Corps Artillery, Order No. 39, 1 August 1917, appended to WD 2<sup>nd</sup> Canadian Heavy Battery, August 1917, File 580, Vol. 4977, RG9-III-D-3, LAC.

<sup>11</sup> Ibid.

<sup>12</sup> Artillery Order No. 52. So much ammunition has been allocated for the Canadian Corps' attack that Morrison ordered 50,000 18-pounder shells and 20,000 4.5-inch howitzer shells to be stockpiled for future use.

<sup>13</sup> Ibid.

<sup>14</sup> War Office, *Field Service Regulations, Part I, Operations – General* (London: His Majesty's Stationery Office, 1912); and War Office, *Field Artillery Training* (London: His Majesty's Stationery Office, 1914), 346-348.

<sup>15</sup> Simpson, *Directing Operations*, 68; and Sanders Marble, "'The Infantry cannot do with a gun less': the place of the artillery in the BEF, 1914-1918" (PhD Thesis, King's College London, 1998), 87.

<sup>16</sup> Albert P. Palazzo, "The British Army's Counter Battery Staff Office and Control of the Enemy in World War I," *The Journal of Military History* 63, no. 1 (January 1999): 614; and Marble, "The Infantry cannot do with a gun less," 83-84.

serving in the corps headquarters, previously controlled by General Headquarters Intelligence, practically became part of the CB office.<sup>17</sup> This was a clear indication of the importance the BEF placed on intelligence gathering and CB.<sup>18</sup>

If the staff acts as the nervous system for the army, then the CB office fulfilled a similar role for the artillery.<sup>19</sup> The counter blaster, the colloquial name given to the CBSO and his staff, was tasked with destroying or neutralizing the enemy guns. This, the CBSO accomplished through rigorous staff work, analysis of intelligence collected through various sources and sensors, and drafting CB bombardment orders. Work for the CBSO never ceased. Daily, he prepared an artillery intelligence report and list of hostile batteries, which listed all confirmed and suspected enemy battery locations, and a CB programme, which indicated targets for each of the batteries to engage. Weekly, he wrote a report on hostile battery activity. These daily and weekly reports and returns were completed in addition to the battle map, which indicated every friendly and confirmed as well as suspected enemy gun positions. Stationery Service (SS)

139/3, issued in February 1918, notes:

Counter-battery work is not a matter of spasmodic effort, but is a continuous operation depending for success on accuracy of fire, continuity of the plan, unremitting study and firm control. Its conduct on these lines will alone meet the end in view, namely, the considerable if not total reduction at decisive moments of the volume of hostile artillery fire.<sup>20</sup>

The creation of these offices standardized the BEF's method of CB work and ensured "that the counter-battery action of the Artillery of the Corps shall not degenerate into the spasmodic fire of independent batteries dependent on the individual ideas and energy of their Commanders."<sup>21</sup> As soon as the Canadian

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<sup>17</sup> C.N.F. Broad, "Army Intelligence and Counter-Battery Work," *Journal of the Royal Artillery* 49, no. 4, (1922): 187.

<sup>18</sup> Andy Simpson, *Directing Operations: British Corps Command on the Western Front, 1914-18* (Stroud: Spellmount, 2006), 62; Marble, "The Infantry cannot do with a gun less," 83-84; and Palazzo, "The British Army's Counter Battery Staff Office and Control of the Enemy in World War I," 56-57.

<sup>19</sup> The nervous system analogy is from Michael Howard, *The Franco-Prussian War* (New York: Meuthen, 1981), 24.

<sup>20</sup> SS139/3, Artillery Notes No. 3, "Counter-Battery Work," February 1918, Imperial War Museum SS/CDS Pamphlet Collection.

<sup>21</sup> *Ibid.*

Corps assumed responsibility for the sector of trenches around Lens in July 1917, McNaughton and his staff began preparations for the CB battle. Their diligence went a long way in silencing the German guns.

Besides an improved organization, technology and scientific gunnery also made effective CB fire possible. Sound ranging sections, provided by the Royal Engineers, could determine the location of the German guns to fifty yards with one detection and twenty-five yards with subsequent detections, determined the calibre of the gun, and indicated when and where it was firing.<sup>22</sup> Furthermore, the sound ranging sections could adjust fire onto the hostile gun position.<sup>23</sup> In addition to sound ranging, flash spotting, aerial photographs, FOOs, German prisoners, intercepted enemy wireless traffic, as well as captured documents enabled the CBSO to produce comprehensive maps, with the majority of the German gun positions plotted.<sup>24</sup> This system of systems ensured that when one sensor failed to determine the location of a German gun, another could. By 1917, gunners had become proficient in indirect fire. Accurate maps produced by survey sections, compensation for meteorological conditions, and the variations in ammunition lots and the muzzle velocities of each gun, all made indirect fire more accurate.<sup>25</sup> Predict fire returned the element of surprise to the First World War battlefield by denying the Germans early warning of an attack.

If observation from the ground was not possible, aerial spotting provided by the Royal Flying Corps (RFC) could be used to adjust fire onto the target. Major W.A. “Billy” Bishop, Canada’s famous Great War ace, described the process of aerial observation for a CB shoot in his wartime memoir *Winged Warfare*:

You fly on until you pick up the four mounds that indicate the German battery position. You fly rather low to get a good look at it. The Huns generally know what your coming means and take cover. You return a little way toward your own lines and signal to your

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<sup>22</sup> Martin Farndale, *History of the Royal Regiment of Artillery: Western Front, 1914-18* (London: Royal Artillery Institution, 1986), 161.

<sup>23</sup> Ibid.

<sup>24</sup> Palazzo, “The British Army’s Counter Battery Staff Office and Control of the Enemy in World War I,” 63-64. Then, as now, these sensors require the enemy guns to actually fire to detect them. It is nearly impossible to detect guns that are not firing.

<sup>25</sup> Jonathon Bailey, “British Artillery in the Great War,” in *British Fighting Methods of the Great War*, ed. Paddy Griffith (London and Portland: Frank Cass, 1996), 37.

battery to fire. In a moment you see the flash of a big gun. Then nothing seems to happen for an eternity. As a matter of fact twenty to thirty seconds elapse and then fifty yards beyond the German battery you see a spurt of grey-black earth spring from the ground. You signal a correction of the range. The next shot goes fifty yards short. In artillery language you have “bracketed” your target. You again signal a correction, giving a range just in between the first two shots. The next shell that goes over explodes in a gunpit.<sup>26</sup>

Inclement weather and a shortage of aircraft due to the Flanders offensive, limited the number of aircraft available for spotting, so most of the shooting during the battle was predicted.<sup>27</sup> However, between 15 and 17 August, over 240 calls for fire came from these spotter aircraft, and they were promptly answered by the guns.<sup>28</sup>

The efficient CB organization and new technologies would not have made a difference at Hill 70, had McNaughton and his staff not analyzed the intelligence gathered, planned the daily CB shoots, and measured their success. The CB office compiled all of the intelligence gathered from FOOs, aerial observation, sound ranging, and flash spotting. From these sources, they derived target grids of German gun positions, which were plotted on a map and, in daily orders, assigned to a Canadian heavy battery to destroy or neutralize. These methodical preparations forced many German batteries to displace and hastily occupy new positions, which afforded Canadian gunners “good chances of inflicting casualties to equipment and personnel.”<sup>29</sup> Since the artillery could not neutralize all of the German pieces with high explosive shells, they relied heavily upon gas and smoke<sup>30</sup> to harass and blind the German gunners.<sup>30</sup> Despite these preparations, some German guns would still be in action once the infantry began their assault. Once these enemy guns opened fire, they would be detected by the various sensors and “be

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<sup>26</sup> William A. Bishop, *Winged Warfare* (New York: George H. Doran Company, 1918), 27-28.

<sup>27</sup> G.W.L. Nicholson's *The Gunners of Canada: The History of the Royal Regiment of Canadian Artillery, Volume I, 1534-1919* (Toronto and Montreal: McClelland and Stewart Limited, 1967), 297.

<sup>28</sup> Farndale, *History of the Royal Regiment of Artillery*, 205.

<sup>29</sup> Artillery Order No. 64, 16 August 1917, appended to WD GOC RA Canadian Corps, August 1917.

<sup>30</sup> Bailey, “British Artillery in the Great War,” 38; and Tim Cook, *No Place to Run: The Canadian Corps and Gas Warfare in the First World War* (Vancouver and Toronto: UBC Press, 2009), 129.

subjected to an intense neutralizing fire.”<sup>31</sup> The fire plan even incorporated aircraft, and the operation order called for the RFC to engage German gun positions that were out of range of the Canadian guns.<sup>32</sup>

The diligence of McNaughton and his staff paid dividends during the battle. By zero hour on 15 August, the CB fire, which began a month beforehand, knocked sixty-three of the 102 German batteries defending Hill 70 out of action.<sup>33</sup> One Canadian infantry battalion reported that of its 400 casualties sustained on 15 August, 70 percent resulted from small-arms fire.<sup>34</sup> A telling statistic that hints to effectiveness of McNaughton’s CB work, since the majority of casualties in the First World War were caused by shrapnel. Massie’s guns quickly silenced the few German guns that fired scattered SOS fire to support their beleaguered infantry.<sup>35</sup> With the enemy batteries mostly suppressed, McNaughton reassigned some of the heavy pieces from CB work to target positions in the German rear.<sup>36</sup> However, the CB battle did not stop once the infantry stopped its advance and consolidated. It was a continuous struggle. Canadian gunners continued to suppress German batteries and knocked an additional thirty batteries out of action between 17 and 18 August.<sup>37</sup> The counter-blasters and his gunners had done well.

The CB programme, planned by McNaughton and his staff and executed by the gunners of the heavy and siege artillery, greatly contributed to the Canadian victory at Hill 70. Silencing the German guns was a necessary precursor for the infantry to advance and seize the hill. Sufficient guns with an abundance of ammunition, an efficient command and staff structure, new technology, and innovative gunnery all contributed to the successful CB fight at Hill 70. McNaughton and his staff in the CB office continued to perfect their craft during the subsequent battles at Passchendaele, Amiens, and the Hundred

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<sup>31</sup> Counter Battery Office Canadian Corps Artillery, Order No. 39.

<sup>32</sup> Canadian Corps Heavy Artillery Operation Order No. 81, 30 July 1917, appended to WD Headquarters Canadian Corps Heavy Artillery, August 1917, File 561, Vol. 4973, RG9-III-D-3, LAC.

<sup>33</sup> Farndale, *History of the Royal Regiment of Artillery*, 205.

<sup>34</sup> Report on the Capture of Hill 70, 15<sup>th</sup> August – 17<sup>th</sup> August 1917, appended to WD 8<sup>th</sup> Canadian Infantry Battalion, August 1917, File 370, Vol. 4918, RG9-III-D-3, LAC.

<sup>35</sup> Nicholson, *Canadian Expeditionary Force, 1914-1919*, 288.

<sup>36</sup> WD 2<sup>nd</sup> Canadian Heavy Battery, 15 August 1917.

<sup>37</sup> Canadian Corps Summary of Intelligence, 18 August 1918, appended to WD Canadian Corps – General Staff, August 1917.

Days. Certainly, the lessons learned from the First World War should not be ignored. CB still has implications in the contemporary operating environment, specifically with how NATO forces deploy their guns and organize higher headquarters. The ongoing conflict between Russia and Ukraine has clearly demonstrated a need for a robust CB capability. Without the ability to neutralize Russia's vast tube and rocket artillery arsenal, the ability of NATO forces to manoeuvre and fight on the battlespace would be severely hindered.<sup>38</sup> Although many difficult fights lay ahead for the Canadian Corps after their victory at Hill 70, Canadians can be rightfully proud of the effectiveness of the gunners in the Canadian Corps at CB work. By the end of the war, barely any German guns remained in action by the time the infantry climbed out of their trenches and began their advance – a far cry from earlier battles in the war. The last words on the performance of the Canadian artillery during the Battle of Hill 70 should be left to Currie, whose victory depended greatly on the guns. “The assaulting infantry maintain that the artillery preparations has never been more complete, that the support has never been better, and that the liaison has never been so nearly perfect.”<sup>39</sup>

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<sup>38</sup> For an overview of the artillery lessons that can be gleaned from the Russo-Ukrainian War, see Phillip A. Karber, “‘Lessons Learned’ from the Russo-Ukrainian War: Personal Observations” (draft of paper presented at the Historical Lessons Learned Workshop sponsored by John Hopkins Applied Physics Laboratory and US Army Capabilities Center (ARCIC), The Potomac Foundation, 6 July 2015).

<sup>39</sup> Quoted in Tim Cook, *Shock Troops: Canadian's Fighting the Great War, 1917-1918*, Volume 2 (Toronto: Penguin Canada, 2008), 294.