Intelligence-Fires Fusion and its Origins on the Western Front

Dr Albert Palazzo[1]

Introduction

The popular image of the Western Front during the First World War is one of a futile physical stalemate. The lack of physical movement stands in stark contrast to the ferment of thinking, experimentation and innovation that was occurring in the trenches of both sides. What created the stalemate was the technological advances in defensive firepower that began in the American Civil War and that reached their apogee during the First World War. What broke the stalemate was the invention of combined arms warfare, the end result of many unsung innovators who identified, tested and inculcated the means to defeat the defender's advantages. One of the most critical of these innovations was the Counter-Battery Staff Office (CBSO)[2], war's first intelligence-fires fusion cell.

Before the onset of the stalemate in late 1914, the leaders of Europe's armies were well aware of the advantage that improvements in fire power since the mid-1800s had conferred on the defence. This series of advancements in weaponry, including breech loading rifles, machine guns, quick firing guns and smokeless powder, allowed the defender to create a killing zone in front of their position, making any attacker's passage a hazardous proposition. The lessons of a series of wars, from the American Civil War to the Russo-Japanese and Balkan Wars, repeatedly highlighted the cost of closing with an enemy armed with modern weapons. Unfortunately, before the Great War no solution had been found, other than a mistaken faith in the power of soldiers imbued with moral force to advance into the face of a maelstrom of bullets and shrapnel.

On the Western Front, the key tactical question was how to restore manoeuvre so that attacking troops could close with the enemy in sufficient numbers to force a decision, albeit a local one. By late 1917 great strides had been taken towards this goal, but it was not until the war's final months that the stalemate was broken. Numerous technical advances brought this about including the tank, which was in widespread use by the British and French, the copious use of gas by all sides, the introduction of gun calibration and aerial spotting and other improvements. However, the critical innovation was the CBSO which brought together these advances into an effective system that linked sensors with decision makers with fires. By using the CBSO system of fire management, the British (and the French equivalent) were able to silence the enemy's artillery at the point and time of their choosing. With the enemy's guns silenced, the infantry advancing in the wake of tanks and a

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[1] Dr Albert Palazzo is a Canberra based defence thinker. The views expressed here are his own.

[2] The story of the Counter-Battery Staff Office is told in the author's 'The British Army's counter-battery staff office and control of the enemy in World War I,' *The Journal of Military History*, 63:1 (January 1999), pp. 55-74.

rolling barrage, British (and Australian) infantry were able to cross no man's land and gain the enemy's trenches. By the Battle of Amiens of 8 August 1918, the system had been perfected, and from that point onwards the German Army suffered a series of hammer blows that led to the Armistice.

The CBSO

The first CBSO was raised by X Corps on July 1916 and III Corps followed in September. By January, British General Headquarters ordered that every corps was to form a CBSO.[3] They were all small organisations, commanded by a lieutenant colonel and consisting of a handful of artillery and intelligence officers and clerical other ranks. The CBSO did not command. Rather, command of corps level artillery assets remained with the General Officer, Commanding Royal Artillery (GOCRA), the corps's senior gunner. Nor did the CBSO command the sensor organisations, of which there were many. These included sound ranging and flash spotting engineers, the squadrons of observer aircraft and balloons, the interrogators of prisoners of war, the signallers who conducted wireless interception and infantry officers from the front line. All of these 'sensors' gathered information which was forwarded to the CBSO. The CBSO staff could and did issue counter-battery fire missions to the artillery in the corps but did so on the GOCRA's authority.

The CBSO's task was two-fold. First it compiled and analysed the data provided by the sensors. Its staff then interpreted the data to build a map plotting the location of the enemy's batteries on the corps's front. Once plotted the CBSO staff routinely updated the map in case the Germans relocated a battery, which happened with some frequency. The plot, therefore, was a living picture of the enemy's artillery network and provided British commanders with critical assistance in planning an attack.

For the planning of an offensive the CBSO was responsible for the counter-battery component of the operation. Its staff would identify the targets to be bombarded, allocate the mission to a battery, and specify the number and mix of munitions used. Since the enemy's artillery did not have to be destroyed, only neutralised for a period of time sufficient for the infantry to cross no man's land, gas shells were widely employed in the counter-battery barrage, in addition to high explosives. Surrounding an enemy's gun positions with a cloud of toxic gas meant that the German gunners had to seek shelter within the relative safety of their gas proof dug-outs; the design of the enemy's gas masks did not permit its soldiers to undertake the heavy work of firing guns while under a gas attack.[4]

The Anglo-Franco Battle of Amiens of 8 August 1918 illustrated the effectiveness of the CBSO system. The British were able to locate virtually all of the enemy's guns that could interfere with the infantry's advance. At 4:20 am a furious barrage of gas and high

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[3] Alan H Smith, *Do Unto Others: Counter Bombardment in Australia's Military Campaigns*, Newport, Big Sky Publishing, 2011, pp. 99-100.

[4] The story of the operational use of gas by the British Army is told in the author's *Seeking Victory on the Western Front*, Lincoln, University of Nebraska Press, 2000.

explosives simultaneously descended on German battery positions, neutralising them. At the same time, British and French tanks rolled forward, followed by infantry advancing behind a barrage. Reaching the enemy's lines through gaps in the barbed wire made by the tanks the British and French infantry began to round up large numbers of German prisoners as they penetrated deeply into the enemy's lines. Among the haul were 400 of the enemy's guns including an 8-inch howitzer battery whose crews lay dead around their weapons, suffocated by gas before they could escape.[5] General Eric Ludendorff referred to 8 August as the 'Black Day of the German Army.'[6]

If the CBSO system had one failing it was its lack of mobility. While the sensors of the time would be recognisable to soldiers today the lack of computerisation meant that the replotting of the enemy's new battery positions took days if not weeks. In addition, the torn up battlefield created a physical barrier to the advancement of the British guns so that they could recommence their work of silencing the enemy. To the end of the war, every surge forward was followed by a pause as the system reset itself for the next battle. But these drawbacks were trivial in comparison to what the CBSO provided the British and French forces with, that is, the means of victory.

The CBSO and its lessons for the Re-rise of the Defence

The CBSO helped to restore manoeuvre to the Western Front, while the adoption of mechanisation during the interwar period meant that defensive fire in the Second World War did not again lead to stalemate. Today, however, recent technological advances, are again shifting the balance between the offence and the defence and increasing the price the manoeuvring force will have to pay to achieve its objectives. The range and sensitivity of modern sensors that operate across the electro-magnetic spectrum will make it increasingly hard for combatants to hide on the future battlefield. While long-range precision fires will enable an adversary to create killing zones of theatre-size proportions.[7] Airborne energy weapons, rail guns and hypersonic missiles will further complicate the mission of a manoeuvring force.[8] The extension of war into the cyber and social media domains means that strikes can now be conducted against targets anywhere on the globe. Distance and

[5] Ibid., pp. 178-81.

[6] 'Black Day of the German Army in this war,' at https://www.awm.gov.au/collection/E109 (accessed 10 October 2017).

[7] Andrew F Krepinevich and Barry Watts, Meeting the Anti-Access and Area Denial Challenge, Washington DC, *CBSO*, at http://csbaonline.org/research/publications/a2ad-anti-access-area-denial/ (accessed 10 October 2017).

[8] Brian Wang, 'Comparing Lasers, Railguns, and Hypersonic Weapons as Potential Game Changers,' *Next Big Future*, at https://www.nextbigfuture.com/2017/04/comparing-lasers-railguns-and-hypersonic-weapons-as-potential-gamechangers.html (accessed 11 October 2017).

time are threatening to become irrelevant as sensing and strike capabilities increasingly approach the speed of light.

One of the challenges facing the militaries of the 21st Century is how to overcome the anti-access/area (A2AD) denial capabilities of their adversary.[9] While these capabilities are typically associated with China, they are proliferating as the technical and economic cost of acquisition declines. In wars of the future, will the manoeuvring force be able to cross a theatre-size no man's land and close with and impose their will on the enemy? This is the same question that the generals of the late 19th and early 20th century faced as they confronted the power of a much simpler and less lethal form of A2/AD. They were only able to solve the problem through experimentation and trial in the midst of great carnage. The commanders of today must do better.

Conclusion

The CBSO's contribution to victory in the First World War was proved vital even if largely forgotten. A small cadre of staff officers, supported by a variety of personnel who operated sensors, solved the critical challenge of the war. Its legacy was the realisation of the need for intelligence-fires fusion organisation, a recognition that continues to this day. While the sensor and fire technologies have advanced exponentially since the start of the First World War, the process that the CBSO institutionalised remains relevant and is the foundation for today's intelligence-fires fusion centres. For those commanders and staff officers who must consider the challenges of war in the present and future, the success of the CBSO should offer a way forward.

[9] On this challenge see, James R Holmes, 'US Confronts and Anti-Access World,' *The Diplomat*, 9 March 2012, https://thediplomat.com/2012/03/u-s-confronts-an-anti-access-world/ (accessed 11 October 2017).