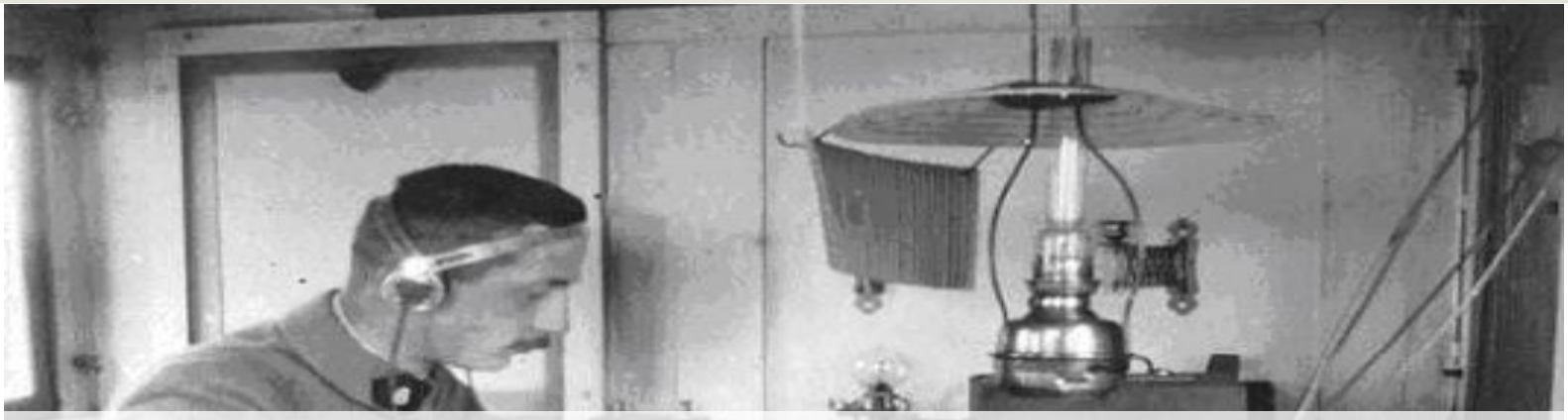

Great War Signals and the NEB: Two Military Communications Revolutions

Earth Thought Notebooks

Chef de bataillon Pascal VIRET

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Histoire & stratégie

The digitisation of the battle space (NEB), made possible by the technological evolution of the means of communication, constitutes a real digital revolution in military affairs. The technological revolution in communications during the Great War can be compared to the digitization of the battlefield today. Both periods mark a major technological change in the means of communication and open up new prospects for the employment of the armed forces.

The digitisation of the battle space (NEB), made possible by the technological evolution of the means of communication, constitutes a real digital revolution in military affairs. The technological revolution in communications during the Great War can be compared to the digitization of the battlefield today. Both periods mark a major technological change in the means of communication and open up new prospects for the employment of the armed forces. In particular, during the First World War, there was a shift from radio, or peer-to-peer communication, to broadcasting, or the use of radio. The latter term - broadcasting - gradually spread to the public and was soon shortened to radio. Thus, the Great War can be seen as the first stage in the transformation of WBT into radio. Nowadays, it is indeed the world of the Internet and the generalization of local networks that give a new dimension to transmissions.

During these two periods, the conditions of combat evolve without changing the principles of warfare decreed by Marshal Foch, namely freedom of action, concentration of efforts and economy of means. The establishment of efficient means of communication is therefore aimed at guaranteeing freedom of action by relying on safety, forecasting and anticipation, and the ability to gain ascendancy over the adversary. The challenges of communication yesterday and digitization today lie in the establishment of more effective command tools, which are real decision-making tools for operational leaders, and even more so because, when it comes to communication, they are also their ears and their voice. These two eras are therefore close together.

The communications of the beginning of the Great War and the transmissions of the 1990s, or the programmed obsolescence of existing means of communication

In the 1990s, as in 1914, military means of communication are still relatively rudimentary, but meet the needs of their time.

Signals in 1914 are still highly dependent on climatic conditions and poorly adapted to operations. On the one hand, optical or pennant links remain the main means of communication in the field. On the other hand, telephony and telegraphy, despite the constraints they pose, are the nominal means of communication between headquarters. Finally, communications from the rear were provided by the PTT service, out of range of the enemy artillery.

In a difficult environment, the telegraph sappers performed prowess. On the front line, in August 1914, they unrolled the lines of cables on the roads of Alsace, Lorraine and Belgium in order to deliver telephone and telegraph communications from the command echelons to the front. But despite this work, communications were often rendered unusable.

But the evolution of the conflict towards positional warfare, trench warfare, made the deployment and maintenance of communications lines increasingly difficult. The effect of enemy artillery on hard-hit cable lines made it necessary to protect them from shrapnel. In 1916, during the hell of Verdun, the telegraph sappers faced all the dangers of building or maintaining the lines under the bombardments. This often thankless task was carried out in defiance of danger throughout the war.

In the 1990s, with the deployment of the RITA system (integrated network of automatic transmissions), voice and radio remained the nominal command tools of the armed forces. However, the democratisation of information technology creates, as it did at the beginning of the Great War, new information needs which technological developments must meet.

The development of new technologies opens up new possibilities

The development of radio by Marconi at the beginning of the 20th century [and] the democratisation of the Internet in the 1990s opened up new prospects for both military and civilian communications. The communications revolution is underway.

In 1914, as at the end of the 20th [century, the] High Command understood the need to develop new means of communication. In trench warfare, the telegraph engineers had the greatest difficulty in maintaining the availability of telephone and telegraph networks. Part of the answer lies in the development of wireless telegraphy (WTF) for radio links and ground telegraphy (GST) under the impetus of Colonel Ferrié.

The industrialization of the production of radios and the massive equipment of the units will facilitate the resumption of the war of movement in 1918. Indeed, this equipment of the troops allows the development of new combat procedures.

Nowadays, the rapid development of high-speed technologies (fibre optics) and satellite means such as Syracuse or REMO meet both the growing need for information and the interconnection of forces deployed in a theatre of operation. The digitisation of new weapons systems makes it possible to circulate a large amount of information while overcoming distances. This is the world of info-value.

A major impact on the use of forces

Equipping the armed forces with radio sets and digital systems, if it does not change the art of warfare, opens up new perspectives for command and intelligence that can reduce the fog of war and gain the necessary lead over the enemy.

This capacity to massively equip units and the development of procedures favours the deployment of signals down to the lowest echelons. Thus, new trades are developing. In the infantry**,** the radiotelegrapher was born. A post occupied mainly by radio amateurs who had shown their talent shortly before the war.

In the cavalry, **tanks** were used for the first time in military history. The only means of ensuring communications links is the TSF, helping the movement of tanks. It also makes it possible to transmit the information collected by the reconnaissance tanks.

It was during the recapture of the Malmaison fort that the telegraph engineers of the 8th RG went up in tanks [for] the first time to transmit the precious information.

The air force also benefited from these developments. If at the beginning of the conflict the first tests are not conclusive, the lack of information provided by military aviation during the Battle of Verdun or the Chemin des Dames pushes its development. Transmitters were installed on board observation aircraft to quickly communicate movements in enemy trenches and guide artillery fire. Once the problem of noise due to aircraft engines was solved, receivers were installed on board. They allowed bases to guide the movement of the planes by giving orders to the pilots by radio.

But the contribution of the means of transmission on the battlefield does not stop there. With technological developments and the awareness of the strategic importance of military communications, listening to enemy transmissions became an indispensable source of intelligence. Eavesdropping, radio direction finding and cryptology services, the forerunners of electronic warfare, intercept and decipher in order to know the positions and movements of the adversary.

In October 1914, during the race to the sea, these services took advantage of the Germans' abuse of transmissions. Thus, the 10th Army could follow the movements of General Marwitz's IInd [Cavalry] Corps.

In 1915, telephone tapping began, for which special stations were created. Once again, the sappers showed courage to approach the enemy trenches to connect to the cable lines, despite the German machine-guns and patrols. In the opposite direction, this situation also requires the protection of information.

This is the development of cryptology. Encryption methods were developed to make messages incomprehensible to the enemy.

The digitisation of the battlefield, like the new communication systems in 1914, has profoundly transformed our daily lives. The NEB is an integral part of our training and operational environment. It allows us to know, analyse, synthesise, decide, manoeuvre and evaluate, all more quickly, saving resources and concentrating efforts. In short, it consolidates a more objective understanding of the situation, logically favouring rapid manoeuvring and the seizing of opportunities.

Telegraphic engineers and transmitters on all fronts

Yesterday as today, transmitters contribute to the smooth functioning of armies. The evolution of the telegraph sapper units until 1918 reflects the importance taken by signals during the Great War. From the mobilization of 2 August 1914, the 8th Engineer Regiment is the only regiment of telegraph engineers. If the total strength is then 12,000 men including 150 officers, the regiment counts in 1918 55,000 men including 1,000 officers, showing the growing need for communications for the command.

At the end of the conflict, units of telegraph engineers were scattered in small detachments in corps, divisions, artillery groups and air squadrons. These units followed the incessant movements of their staffs to maintain communications that had become essential to the battle on all fronts.

By 2015, transmitters are everywhere, ready to deliver the communications systems needed to command operations, providing political and military leaders with the means to make decisions.

Ultimately, communications have always played a vital role in reducing the fog of war for the military leader. It was indeed the First World War that initiated the first military revolution in which communications played a major role. No conflict had ever seen such a tactical and technological evolution. Military communications thus underwent a major expansion to meet the growing needs of the command. Communication tools came out of the headquarters to equip troops for contact. But this information that circulates can be listened to and must therefore be protected. This communications revolution is the starting point for the military revolution we are experiencing today, the digitisation of the battle space. Since the end of the First World War, communications have been and will always be the spearhead of war. They are the sight, the ears, the word and the guide of the combatant.

EMIA officer of the Signals Army (promotion "Captain Biancamaria", 2001-2003), the VIRET Battalion Chief did his time as a lieutenant at the 4th CCT in Nancy. From 2009 to 2011, he commanded the 2nd Company of the 53rd Signal Regiment in Lunéville. He is currently studying for a technical diploma in information science and technology (STI), networks and telecommunications (RTL) at the Cesson-Sévigné signals school.

Title :	Chef de bataillon Pascal VIRET
Author (s) :	Chef de bataillon Pascal VIRET
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