

Version 1.0 | Last updated 08 October 2014

Espionage

By [Emmanuel Debruyne](#)

During the entire war, warring powers used the “secret war” to try to break the balance of the battlefield. Generally created in the previous few decades, intelligence and security services saw strong development during the war: the warring sides were committed to espionage behind enemy lines and in the neutral countries, but also performed other tasks such as tapping radio communication; sabotage; counterintelligence; and propaganda. The secret war was also fought in the mind, as all warring societies were consumed by spy mania, and began to recognize their own spies as true heroes and heroines.

Table of Contents

- [1 Introduction](#)
 - [2 Intelligence and the Concerns of the Belle Époque](#)
 - [3 Spies' Great War](#)
 - [4 Counterintelligence and Repression of Espionage](#)
 - [5 Tapping the Enemy](#)
 - [6 Espionage and Neutrality](#)
 - [7 Intelligence Services at War](#)
 - [8 The End of the War and the Continuation of the Secret War](#)
 - [9 Conclusion](#)
- [Notes](#)
- [Selected Bibliography](#)
- [Citation](#)

Introduction

The First World War was fought not only on the battlefields and in the ammunition factories, it was also the scene of a large-scale secret war in which the various belligerents engaged through their intelligence services. This contribution will first provide an overview of intelligence before the war, and will then consider the ways in which the warring parties used espionage during the war or tried to protect themselves against it, including in the field of communications and in the territory of [neutral](#) states. It will also consider the way war contributed to transforming intelligence services, and will end by evaluating the place of espionage in [post-war societies](#).

Our current knowledge of espionage and intelligence during World War I remains limited.^[1] Many archives from the secret services themselves have been destroyed, especially during World War II. This difficulty has not prevented historians of different nationalities from bypassing the problem by using various other types of source. However, academic research in this area, while benefiting from the development of the intelligence studies since the end of the 20th century, remains sparse and often fairly recent.

Intelligence and the Concerns of the Belle Époque

Permanent national secret services made their appearances during the second half of the 19th century, favoured by a scientifically oriented century during which western societies tried to identify, inventory and measure in all areas in order to control their environment. International relations and military affairs were no exception to this desire for mastery, in a climate of growing competition between powers.

Most of the general staffs of the European powers established during this period a permanent military intelligence service, often after facing up to a deep crisis. Shaken by the years 1848-1849, [Austria-Hungary](#) was the first to create such a permanent structure, with the foundation of the *Evidenzbureau* in 1850. In France, the creation of the *Deuxième Bureau* was the result of the 1871 defeat. In [Germany](#), the *Sektion im Großen Generalstab* (future *Abteilung IIIb*) was created in 1889, while in [Italy](#), it was not until 1900 that the *Ufficio Informazioni del Comando Supremo* (or *Ufficio "I"*) appeared, after a first attempt in 1863-1866. Russian military intelligence was also reorganized after [its defeat by Japan](#). From 1906 onwards, the 7th Section of the 2nd Executive Board of the great imperial headquarters, played a role of centralization of the information collected by military attachés and military districts.

Most of these military intelligence services were divided into sections devoted to particular geographical zones or, better said, potential opponents. The *Abteilung IIIb* had a section directed against [Russia](#), and another dedicated to [France](#). The work of the latter tended towards persuading the German general staff that France did not constitute a particularly formidable opponent. On the other hand, the *Abteilung IIIb* neglected the British Empire, which was the subject of the efforts of the *Nachrichtenabteilung*, the German Navy's secret service. The *Evidenzbureau* also had regional sections, the most important being directed against Russia. Other services, such as the French and

the Russian ones, had offices in the border military regions of their own territories, which conducted their operations abroad.

National staffs were not the only ones to develop intelligence services. The building of fleets, instruments of imperial power and international prestige, boosted by the naval fever of the Belle Époque, was accompanied by the creation of intelligence services within the admiralties of the main naval powers, such as the Royal Navy's Naval Intelligence Division (NID), and the Office of Naval Intelligence (ONI) of the United States Navy, both created as early as 1882. In the following years, Italy, Germany, Russia and Austria-Hungary set up specific navy intelligence services as well.

Civil authorities were also responsible for intelligence tasks. Best known is the role of the British services. In 1909, a Secret Service Bureau was set up jointly by the Foreign Office, the War Office and the Admiralty to deal with intelligence. The following year, this still embryonic organization divided into two services. The first, the Secret Service, led by a marine officer, [Mansfield Smith-Cumming \(1859-1923\)](#), alias "C", dealt with intelligence abroad, while the second was responsible for the home country.^[2] The Secret Service had little means before the war, but managed to get some results, particularly in the area of shipbuilding in Germany, which was its main target. On the other hand, it avoided spying in France so as not to harm the rapprochement between the two states against the common – potential – enemy.

From the 19th century, military and naval attachés played an important role in military intelligence. In principle, their diplomatic status prohibited them from conducting espionage against their host country. Their role was supposed to be restricted to the transmission of open information, but in practice, many took the risk of collecting confidential information about the state where they were in residence, while many others bypassed the problem by recruiting agents to spy in neighbouring countries. For example, the Russian military attaché in Copenhagen had been set up before the war networks on German territory. Similarly, the capitals of the Balkan countries served as bases for the major powers' intelligence, especially during the troubled years before the war.

The small powers remained not totally foreign to the movement, but it was more difficult for them to practice an effective offensive intelligence against their powerful neighbours. [Belgium](#) and [Serbia](#) presented for example of high-contrast profiles. Serbian military intelligence was, since 1913 led by Colonel [Dragutin Dimitrijević \(1876-1917\)](#), aka "Apis", who was also the head of the nationalist and pan-Yugoslav secret organization commonly referred to as "[Black Hand](#)". Conspiracies of Apis and his supporters, both within the kingdom and outside its borders, attracted him some enmity from Serb leadership spheres. The case of Belgium was very different. Because of its neutrality, this small country remained for a long time out of the movement of military intelligence development. Since 1896, it had only a small service of border surveillance with very limited skills, and whose officers could not cross the border in times of peace. In 1910, Belgium finally set up a *Deuxième* Section of the army's general staff, responsible for intelligence, but again with very little means. And it was only in 1913 that Belgium appointed its first military attachés.

At the same time as – and in response to – the development of intelligence services, security and counterintelligence tasks also extended into European countries, and were given to specialized agencies. Belgium had one of the oldest, with its *Sûreté publique*, created in 1830, but its role during the Great War unfortunately remains obscure. In the United Kingdom, defensive intelligence was the responsibility of the Security Service. This service was an emanation of the homeland branch of the Secret Service Bureau and was responsible for the intelligence on British soil. It was headed by an army officer, [Vernon Kell \(1873-1942\)](#), alias “K”.^[3] This service, like many of its foreign counterparts, had no police powers. Its personnel had therefore to rely on the different national police forces to investigate, and to arrest suspects. Some of the latter also developed their own sections dedicated to combating espionage and clandestine activities, such as the Special Branch of Scotland Yard. In France, a civilian agency, the *Sûreté générale*, responsible for order enforcement and public safety, inherited in 1899 – in the turmoil of the Dreyfus affair – counterintelligence tasks previously assigned to the *Deuxième Bureau*. Sometimes, counterintelligence functions were tied more or less closely to those of political police or to fighting organized crime. In the [United States](#), the Bureau of Investigation (future FBI), created in 1908, was primarily an instrument of struggle against criminality. It was also involved in counterintelligence and collaborated on this basis with the Secret Service and the Military Intelligence Division (MID). In Russia, the Tsar’s secret police, the *Okhrana* was set up in 1880 to combat the revolutionary activities which threatened the Empire. It notably involved the creation of an antenna in Paris, for surveillance of opponents who were in exile there. In the Austrian Empire, this task was entrusted to the *Evidenzbureau* and the state police, which worked together closely. Following the crisis of 1908, their efforts were particularly directed against the Serbian threat, but Italian citizens were also closely monitored.

The multiplication of intelligence agencies, depending on civil or military authorities, sometimes gave rise to complex nebulae, where distribution of competences and inter-service cooperation were problematic. Penetration – real or fantasy – of services sometimes added distrust to rivalry. Switch of officers by a rival power, when they were discovered, could cause crises impacting beyond the single framework of the penetrated service. This was the case in France, when Captain [Alfred Dreyfus \(1859-1935\)](#) was wrongly condemned for having sold documents to Germany. The multiple judicial and media twists of the Dreyfus affair divided France from 1894 to 1906, around the issue of anti-Semitism and the honour of the army. Austria-Hungary was also affected in 1913 with the discovery by the state police of the treason since 1907 of the Deputy Head of the *Evidenzbureau*, [Alfred Redl \(1864-1913\)](#), who sold military documents to Russia.^[4] As soon as discovered Redl committed suicide. Russia itself was not spared by the scandals during the years preceding the Great War, especially with the discovery of the involvement of several Okhrana agents in political assassinations.

The considerable impact of these cases was not dissociated from the growing place the spy figure took in the imagination of western societies, nourished by the rivalry between the major powers and the development of police, espionage and anticipation literatures, feeding notably the columns of the popular press. This phenomenon was particularly evident in the United Kingdom, where the

weakness of the real German espionage contrasted with the magnitude of the fears it aroused among the population and within the ruling spheres, increasingly haunted by the concern of an invasion facilitated by the activities of German agents on British soil. Books by [William Le Queux \(1864-1927\)](#), master of the spy novel, largely exploited this theme, so their success helped to strengthen this quasi-collective psychosis. The creation in 1909 of the Secret Service Bureau was in some ways the response of the UK authorities to this phenomenon.

It should be noted that this concern for espionage of the Belle Époque also coincided with progress in the formalization of the [law of war](#) through the [Hague Conventions of 1899 and 1907](#). The wartime spy found there a legal definition: "A person can only be considered a spy when, acting clandestinely or on false pretences, he obtains or endeavours to obtain information in the zone of operations of a belligerent, with the intention of communicating it to the hostile party."^[5] The conventions also provided a minimum framework for the repression of individuals suspected of espionage, stating that even caught red-handed, they could not be punished without previous judgment.

Spies' Great War

The gathering of military intelligence was first operated on the battlefield. However, the war fought from 1914, quickly altered practices, by its magnitude, its duration and, soon, its mostly static character, at least on the [western front](#). The trench warfare could no longer be based on cavalry reconnaissance, the main source of intelligence of armies in the field for centuries. Moreover, they had shown limited effectiveness during the first weeks of the conflict. On the other hand, the development of [aviation](#), allied to that of [photography](#) was of growing importance to aerial reconnaissance, and enabled reports of enemy movements and accounts of its positions. The front itself was an important gathering field, where intelligence officers attached to the large units tried by different methods to update their knowledge of the adverse positions in their sector. The interrogation of prisoners and enemy deserters was a major source of information, which was supplemented by the reports of patrols in no man's land or raids against enemy positions, which allowed the capture of prisoners and the seizure of documents. These practices also created opportunities for both sides to mislead their opponents. Therefore, to facilitate their attack at St. Mihiel in September 1918, the U.S. Army set up a fairly sophisticated deception operation, to make believe that their attack would be made more to the south.

Information collected on the front itself rarely gave more than a local and more or less temporary advantage over the opponent. Yet, obtaining information on the enemy's military capabilities, deployment and strategic intentions could help to obtain a decisive advantage. Therefore, both sides endeavoured to get spies in the enemy army's hinterland. It has to be noted that in Germany itself, the allied secret services never succeeded in establishing important networks. However, the geostrategic situation gave the Entente an important advantage in the west, most German [rear areas](#) being the [occupied territories of France and Belgium](#). French, Belgian and British intelligence services took the opportunity to establish networks amongst the occupied peoples, as the violence

of the invasion and the hardness of the occupation had stirred up among them a powerful resentment against Germany.^[6] Most of the agents – generally recruited among Belgian or French [refugees](#) – who set up these networks were introduced via [the Netherlands](#), but some were also sent over the front line, by aeroplane or balloon. However, most of their collaborators, sometimes entire families, were recruited locally among the population. They were driven by patriotism and hatred of the occupier, but also received financial compensation in order to help them to overcome the difficulties created by the misery of the occupation period.^[7] In four years, more than 250 networks were created, totaling more than 6,400 Belgian and French citizens. These clandestine organizations primarily focused on railway intelligence, the hope of the Entente intelligence services being to receive by this means a continuous flow of information on the strategic movements of German large units. The networks also took account of the presence and state of airfields, ammunition depots and other such aspects of enemy infrastructures. Most of these networks only had a few dozen members, but the most extensive and the most effective of them, [La Dame Blanche](#), or the “White Lady”, benefited in 1918 by having about a thousand agents.^[8] Others were involved in the provision of information to the allied services thanks to homing pigeons dropped over occupied territory, for the inhabitants to return, bearing a duly completed questionnaire.

Conversely, and because of the same geostrategic configuration, German intelligence did not have the same advantages. The basis of recruitment of its spies was tiny, and they had to operate in hostile territory. Their training was therefore more important: it was mainly provided by the spy school of the *Kriegsnachrichtenstelle* in Antwerp, headed by [Elsbeth Schragmüller \(1887-1940\)](#), alias “*Fräulein Doktor*”.^[9] Most German agents in Allied territory appear to have acted mostly in isolation, unable to rely on the recruitment of a vast network of observers, or on a fast and regular transmission system for the collected information. The most famous of them, the exotic dancer of Dutch nationality [Margaretha Geertruida Zelle \(1876-1917\)](#), better known by her stage name of Mata Hari, was actually not the most effective.^[10] Recruited in 1916, she transmitted to her employers information of poor quality, harvested from the Allied officers she met. Information sent from Paris by [August Baron Schluga von Rastefeld \(1841-1917\)](#), in Paris, a veteran spy of the French-Prussian War, was not much more critical. German spies in [Britain](#) had not met more success, with the exception of the mysterious Jules Crawford Silber, who infiltrated the [censorship](#) service of the War Office.

On the [eastern front](#), the situation of the Central powers’ intelligence services was initially not outstanding. Years of efforts of Austro-Hungarian intelligence against Russia had been ruined shortly before the war by the Redl affair. The situation became however significantly more favourable subsequently for the German intelligence operations. The successful offensives of 1915 allowed Germany to seize archives of the enemy and moreover gave it the opportunity to recruit agents among ethnic minorities in Poland and the Baltic countries, whose animosity towards St. Petersburg had increased as a result of the abuses committed by the retreating Russian army. In addition, the infiltration of agents behind enemy lines was easier than in the west, thanks to the more

discontinuous nature of the front, partly because of the presence many forests and marshes. Russian intelligence spy operations remain however today mainly unknown.

In the Balkans, Switzerland was used as a rear base for Allied intelligence. Despite its distance from the front, movements between its territory and Austria remained relatively easy, allowing the Entente to send agents into the territory of the Habsburgs, as well as [Bulgaria](#). During the first half of the conflict, [Romania](#) played to a certain extent a comparable role, while [Greece](#) was used as a springboard for spying on the [Ottoman Empire](#), through agents recruited in the Greek and Armenian communities. British intelligence was also active in the Middle East, where the army had in Egypt and Mesopotamia, as on the western front and in Salonika, its own Intelligence Corps. The revolt of Arab tribes was probably the most spectacular facet of the action of the British secret service against the Ottoman Empire. However, other ethnic minorities were also used, notably allowing the organization of an extensive intelligence network among the Jewish minority in Palestine.

In addition to espionage, several belligerents undertook operations of sabotage behind enemy lines or sometimes against the interests of the opposing powers in neutral countries. In 1915, the French secret services sent from the Netherlands several saboteurs into occupied territory in order to disrupt the German transport for the offensive in Champagne, but the operation met with little success. Subsequently, other agents, dispatched from Switzerland, were more successful in sabotaging German factories. Meanwhile, the German secret services recorded successes in the [United States](#), including the placing of explosives on board Entente ships transporting ammunition. However, their activities, once unveiled and relayed by the press, aroused the indignation of American public opinion, in respect of its neutrality. In the belligerent countries, too, sabotage did not leave opinion indifferent. Like spy mania, the fear of sabotage also became a kind of collective psychosis, which contributed in its own way to the establishment of more coercive laws. Several incidents were attributed to wartime saboteurs, but formal proof was never demonstrated. This was notably the case in August 1916 with the sinking of the Italian battleship *Leonardo da Vinci*, following the explosion of its munitions store. The action of Austro-Hungarian agents was claimed, but could never be proved.

Counterintelligence and Repression of Espionage

During the [crisis of July 1914](#), intelligence services were mobilized and the collection of information was speeded up. German officers disguised as tourists for example were sent to Belgium to monitor the mobilization of its army and the preparation of its forts. Nevertheless, last-minute improvisations, as well as long-term infiltrations, bore no relationship to the hunt for spies that raged from the early days of the war in most of the warring countries, in a climate of spy mania compounded by the press and rumours.^[11] Police, territorial troops and more or less disciplined auxiliary militias provided surveillance of strategic locations, performing controls and arresting suspects, among whom real spies comprised only a very small minority. The participation of ordinary citizens was not limited to denunciations: they converged by the thousand on the authorities of all belligerent countries. Some

also took part in outbursts of violence, especially during the first days of the conflict, during which individuals, referred to as spies by the mob, were the targets of physical violence, arbitrary detention and damage to their property. Some private companies were also suspected of serving as cover for the activities of the enemy. This was the case in France with the (Swiss) firm Maggi and its branch Bouillon Kub, which saw several of its offices ransacked and its advertisement signs destroyed. However, governmental authorities did not necessarily favour the implementation of arbitrary measures against anyone suspicious. As in France, the government decided at the last minute not to arrest people listed in the "carnets B", i.e. those suspected of espionage, antimilitarism etc., believing that such a measure would have been counterproductive with regard to public opinion, especially in labour circles.

Of course, the arrest of suspects was not only the result of a collective psychosis climate of mobilization; spies really did operate on enemy soil before the war. At any rate, once the initial turmoil subsided, the belligerent states took measures to protect themselves against enemy spying, sometimes excessively so: among other things by restricting civil liberties in times of war and by extending the powers of the police and the army. The United Kingdom, until then very liberal, adopted for example, 8 August 1914, the Defence of the Realm Act. States which entered the war later did the same. The United States, for example, shortly before its commitment into the conflict, adopted the Espionage Act. More generally, thanks to the extended powers which were accorded for the duration of the war to the armed forces, the latter established more binding regulations in some areas such as the rear of the front or in the occupied territories. Police and judicial action that facilitated the tightening of the norms was supported in virtually all countries by the action of the defensive intelligence, i.e. the security and counterintelligence services.

The United Kingdom had much trouble identifying German agents on its soil during the years preceding the war, but the effectiveness demonstrated by its counterintelligence service from the declaration of war is mainly a myth.^[12] The Security Service could identify only a minority of the few enemy agents: the other agents' lack of success was mostly because of the breakdown of their communication lines with Germany, preventing them from transmitting the few interesting pieces of information they managed to collect. Counterintelligence operations were not confined to the home country, but were also carried out throughout the Empire, and particularly in India. [Ireland](#) was also a special case for the British services, as the local insurgents' projects had attracted the attention of the German services, which tried to exploit them to their own advantage. In France also, the main battlefield of the Great War, the fight against espionage was a permanent concern. Agents from the *Sûreté générale* were attached to the *Deuxième Bureau* at the beginning of the war, but in May 1915, with the creation of the Section de *Centralisation du Renseignement* (SCR), led by Captain [Georges Ladoux \(1875-1933\)](#), they created a specific organization designed to oversee the work of civilian and military counterintelligence in France. The French secret services could count on the active participation of the national Gendarmerie, which fulfilled many tasks, from the observation of persons to their arrest. Founded by [Georges Clemenceau \(1841-1929\)](#) in 1906, the famous mobile brigades or "*Brigades du Tigre*", ancestors of the judicial police, were also involved.

Among those arrested, a number were executed, sometimes after a very brief trial, in 1914, while the fever of the mania was still at its peak. In Great Britain, the first German spy was sentenced to death and executed on 6 November 1914, in the Tower of London.^[13] The eleventh and last execution took place in April 1916, the British authorities arguing subsequently that these deaths had harmed the image of the British Empire and offered martyrs to the German cause. The most famous execution took however place on French soil: that of Mata Hari. Unmasked in February 1917 by French counterintelligence, she was condemned to death by a Council of War and executed by firing squad on 15 October 1917. Her execution was however more the result of a will to make a point rather than the punishment of the pathetic spy that she was.

In Russia, particularly note-worthy was the sentencing and execution of gendarmerie colonel [Sergei Myasoedov \(1865-1915\)](#), after a summary trial in February 1915. He appeared to be a scapegoat for the military setbacks that the Russian Empire faced at that time. These misfortunes also generated a climate of hysterical spy mania, especially [directed against Jews](#), German-speaking citizens, and various other ethnic minorities of the empire, who were victims of popular violence and fierce repressive measures on the part of the retreating army.

In Italy, the *Carabinieri* played a role comparable to that of the French gendarmerie, their actions feeding into the records of the *Ufficio Riservato* of the Ministry of the Interior. Generally, Italian counter-espionage saw little success, but managed to counteract some enemy agents on its soil thanks to its penetration of a secret bureau of the Austro-Hungarian navy in Zurich. In 1916, the Ministry of the Interior created a new service, the *Central Ufficio di Investigazione*, which undertook a systematic registration of opponents and a rigorous control of postal, telephone and [telegraph communications](#).

Despite being late entries into the war, the United States were concerned about the clandestine activities on their soil, primarily by German agents, well before 1917. After their declaration of war, the fight intensified and the legislative framework on which it could rely became more stringent. Unmasked spies might now face the death penalty, as in most of the other belligerent states, but only one of them received such a sentence, and that was commuted after the war.

In the German Empire, the *Abteilung IIIb* developed a counterintelligence section, the *Spionageabwehr*. This could particularly rely on the military secret police, the *Geheime Feldpolizei*, responsible for ensuring the safety of the troops in the areas of the armies that extended behind the different fronts, as well as on the secret police of the general governments in [occupied Belgium](#) and [Poland](#). Repression of clandestine organizations was also strong: many such networks in the western occupied territories, dealing with espionage, escape or the secret press, were dismantled after a few months of activity. Thousands of people were arrested and tried by the German military courts. The majority of those sentenced received penalties of [forced labour](#), usually in German prisons such as Siegburg or Rheinbach, but 277, including ten women, were executed, mostly for espionage.^[14] Some of them became famous after death; for example, [Gabrielle Petit \(1893-1916\)](#), a young Belgian who had created a small intelligence network and [Edith Cavell \(1865-1915\)](#), a British

nurse involved with an escape group. The counterintelligence activities on the eastern front unfortunately remains not well known, but the figure of 417 death sentences for the year 1916 in the territory of [Ober-Ost](#) alone, as well as examples of executions for espionage in the territory of the general government of Warsaw, allow us to guess that the threat of espionage was also treated very seriously by the occupation authorities in the east. Counterintelligence services could also rely on draconian regulations over the movement of traffic in the various occupied territories, as well as many individual controls by the occupying troops and administrations. These measures however had the effect of stirring up antipathy among the occupied peoples against the Germans. Physical barriers were also set up to thwart unwanted movements, such as those along the Neman River, between Germany and the Ober-Ost, or at certain points along the French-Belgian border. The most spectacular of these barriers was probably the [electrified fence](#) isolating occupied Belgium from the neutral Netherlands all along their common border: one of its objectives was to prevent any transmission of information by land from the occupied territories.^[15]

In the Austro-Hungarian Empire, counterintelligence was also the competence of the *Evidenzbureau*. At the outbreak of the conflict, however it turned out to be powerless facing Russian spies in its territory, the betrayal of Redl having ruined its preparations in this regard. However, this case had also raised awareness of the importance of counterintelligence, which led to a strengthening of the powers and means of the *Evidenzbureau* in this matter. It continued its cooperation with the state police, and the latter made hundreds of arrests during the war. In 1914 alone, 185 people were arrested for espionage by the Austrian state police, some eventually being executed. The Austro-Hungarian army also made extensive use of the death penalty in occupied Serbia including against spies.^[16] Even if its secret services remain little-known compared to those of its powerful allies, the Ottoman Empire also conducted on its soil a counterintelligence policy, which notably resulted in the arrest and execution of several agents working for British intelligence.

One can note the special case of Serbia, where some of its intelligence officers were themselves victims of the repression. While the Serbian army and government had fallen back and reorganized in Greece, the year 1917 was marked by an important trial. It was held in Thessaloniki, in a context where the rivalries of the pre-war period (a time that was overwhelmed by the struggle against the invader), were revived by this governmental exile. Several members of the secret organization Black Hand, including Colonel "Apis", previously chief of the military intelligence service, were tried for a so-called assassination attempt against [Alexander I, King of Yugoslavia \(1888-1934\)](#), as well as for their involvement in the assassination of [Franz Ferdinand, Archduke of Austria-Este \(1863-1914\)](#), and were executed in June 1917.

Tapping the Enemy

The First World War can be seen as the first "Sigint" (signals intelligence) great war, a domain of intelligence which has since taken the first role in the field of intelligence. However, at the outbreak of the war, telephone and radio were relatively new tools, that most armies and fleets had used at best

for a decade, and with which they had rarely had the opportunity to experiment in the conditions of a large-scale war. The result was many faults in matters of security, such as the transmission of messages in clear text, or merely protected by a summary code. During the first weeks of the war, armies which at this time were forced to adopt a defensive posture on their own national territory had the advantage of using their own national telephone and telegraph networks – easy to use and difficult to intercept – while the armies committed in the offensive had to rely more on radio communications that could be scrutinized by the opponent. On the western front, the French army benefited from the situation at the expense of the Germans, while at the same time, in the east, the latter had similar advantage over the Russians, which contributed to the outcome of the [Tannenberg Battle](#).

The trench warfare led to a significant decrease in the use of radio by opposing armies, which made more use of the telephone and telegraph that were more difficult to intercept. This did not prevent both sides from developing, from 1916, covert listening techniques, allowing early local warnings in case of attack and the updating of the enemy order of battle. Each belligerent also tried to improve its methods of encryption while breaking those of its opponents. In March 1918, the introduction of a new cypher by the Germans on the eve of the outbreak of their spring offensives contributed to their initial success by making temporarily inoperative their opponents' tapping activities.

In the east, Germany succeeded in the interception of enemy communications, but faced a competent Russian cryptology service. This advantage against the Russians was also due to the Austria-Hungary, where the *Evidenzbureau* had an excellent cryptology section, the *Chiffregruppe*, created as early as 1911 and headed by [Maximilian Ronge \(1874-1953\)](#).^[17] In September 1914, this section broke Russian codes, which partially compensated for the failure of the traditional espionage in this sector. The *Chiffregruppe* also demonstrated its skills in the war against Italy, which persisted long to use rather rudimentary codes. The Italian Kingdom finally developed its own service from late 1915, but its success in this area remained very limited until the end of the conflict.

Tapping services also played a role in the secondary theatres of operation such as the Middle East, where they were successfully used by the British army. But it was mainly on the seas that they acquired special importance. Fleets in operation could not use other means than the radio for their long-range communications, but it implied the risk of messages being intercepted. The British Admiralty quickly gained the advantage over its main opponent, by receiving from the Russian Navy code books of the German Navy, which had been found in August 1914 on the wreck of the German Cruiser Magdeburg. This discovery was of incomparable use for [Room 40](#), the decryption service of the Admiralty, and led to, in January 1915, the successful interception of a German fleet by the Royal Navy that resulted in the battle of Dogger Bank. Subsequently, listening to transmissions from the German Navy was often beneficial to the British, including for countering the threat of the [U-boats](#) or on the occasion of the [battle of Jutland](#). The use of radio implied however a second risk: the location of the transmitter by radio triangulation, a technique that both sides tried to improve throughout the war, notably by installing along their own shores communications monitoring stations.

Diplomatic messages were also the object of secret service attention in wartime. The best known case, and one of the few to date to have been studied in depth, is the “[Zimmermann telegram](#)” intercepted and deciphered by Room 40, thanks to the acquisition of the German diplomatic code in Mesopotamia. The revelation of the contents of this message from the German Ministry of Foreign Affairs to the Government of Mexico, promising Mexico three U.S. States in the event of war against the United States, facilitated in early 1917 the rise of anti-German feeling among the American public.

Espionage and Neutrality

A state's neutrality did not result in dismissing the spies from its territory. On the contrary, one could say, it often attracted intelligence and counterintelligence services of both sides. Parallel diplomacy was one of the challenges, in order to help maintain the neutrality of the target state, or better, to lead it to adopt a favourable position by more or less covertly influencing its decision makers, directly or through public opinion. Before Italy entered the war, German agents tried to influence various media to maintain the neutrality of the peninsula. This activity extended to the Vatican, where they could count on [Rudolf Gerlach \(1885-1945\)](#), a Bavarian close to [Pope Benedict XV \(1854-1922\)](#), who held the sensitive position of chamberlain of the pope.^[18] Early in 1917, the pope sent him to Switzerland, due to the accumulation of accusations against him from the Italian authorities (by that time at war), who saw Gerlach as an agent of Austria and Germany.

Military attachés stationed in neutral countries continued to play an important role in the gathering of military intelligence, as in time of peace, and generally had their own informants. But more than ever, neutral countries, especially those neighbouring opposing powers, were used as rear bases for networking in enemy territory and, once these networks were operational, as steps in the transmission of the collected information. This was particularly the case in the Netherlands, which were not only neighbours of Germany, but also had a common border with occupied Belgium, where a large proportion of the German troops used on the western front were stationed or stayed in transit. In cities such as Rotterdam, Vlissingen and Maastricht, the various secret services of the Entente established secret bureaus that were in charge of operating networks in occupied territory and in maintaining regular liaison with them in order to obtain a continuous flow of information. Other operations were also mounted from the Netherlands and Switzerland, to obtain information on Germany itself. Austria-Hungary and Germany also used the Swiss territory to launch intelligence and to sabotage operations on Italian soil, notably from Lugano and Zurich. On the other side of the ocean, Germany also took advantage of the neutrality of the United States to carry out covert operations in [Canada](#).

Another way to collect information on the enemy was through the interrogation of deserters who fled into neutral countries. This was particularly the case in the Netherlands, where Belgian and French agents specialized in interrogating the increasing numbers of deserters during the last year of the conflict. However, the neutral states themselves were the subject of the attention of the intelligence services of both sides, not only to evaluate the military involvement they might one day have in the

conflict, but also to monitor the economic role that they were already called upon to play. Indeed, while the allied agents tried to check the application of the blockade imposed on the central powers, the latter tried to mount operations allowing them to bypass it by playing on the leeway offered by the relationship between neutral and belligerent.

Therefore, the penetration of the offices established by opposing parties in neutral countries became an important issue for the counterintelligence services. For example, the secret polices of the German occupying authorities in Belgium tried to strengthen their fight against networks working in territories under their domination by penetrating organizations of the Entente established in the Netherlands. Meanwhile, the United Kingdom had its own agents in the United States, in order to combat their German counterparts on American soil.

These different activities could in the long run turn out to be a dangerous game. This was the case in the United States, where the German services had agents who were less involved in the collection of information than in propaganda and in the disruption of supplies to the United Kingdom coming from the New World. These actions eventually hit American public opinion, which saw them as a rape of their country's neutrality. President [Woodrow Wilson \(1856-1924\)](#) even quoted among other arguments the activity of German spies in the United States to persuade the Congress of the need for the United States to go to war.

Neutral powers were not only a battlefield for the warring secret services, but also actors in this war. Their own security services were concerned by the activities of foreign services, which could endanger their own neutrality. The Dutch GS III (the third Department of the general staff), created on the eve of the war, tried to keep an eye on the agents of both sides who were active on its soil, some of them being actually of Dutch nationality. However, the Dutch authorities did not fight these activities systematically, but only if they became a threat to the country.^[19]

Neutral services could also collaborate with their counterparts in the belligerent nations. For example, before its entry into the war, Italy exchanged information collected by its consular posts in the Ottoman Empire, with the French and British services. The Swiss services also exchanged valuable information with the *Evidenzbureau*, and the Swedish with their German counterparts, while British services cooperated with the United States to counter the activities of German agents on American soil.

Intelligence Services at War

The relative balance of the warring forces reduced the ability of each side to obtain a decisive strategic advantage. The battlefield of the secret war, which could offer possibilities of breaking this balance, raised therefore more hopes and fears, which finally put the secret services of the various protagonists under increasing pressure. In the context of a long and [totalizing war](#), intelligence services were increasingly called upon, which turned out to have a significant impact on them.

First of all, because of their continued importance in the context of war, a number of recently created services, whose continued existence was initially uncertain, were later confirmed. For example, the British Secret Service, headed by Sir Mansfield Smith-Cumming since its foundation in 1909, saw a huge expansion, and became MI-1 (c) in 1916. However, lacking legal existence, it remained at the centre of incessant wrangling between War Office, Foreign Office and the Admiralty. Nevertheless, it managed to consolidate its own existence and ultimately enjoyed significant autonomy. Similarly, the *Deuxième Section* of the General staff of the Belgian army, having been active in espionage and counter-espionage since the beginning of the war, benefited from the creation of an official security service in April 1915. Under the leadership of Major [Joseph Mage \(1872-1950\)](#), it benefited from an important extension of its prerogatives and means, and was officially known as the *Sûreté militaire* from 1916 onwards. Sometimes, intelligence structures were simply set up because of the war context itself, as in the case of the United States, which, from their entry into the war in April 1917, with the exponential development of their armed forces the creation of a service of military information, created a Military Intelligence Section, which became in 1918 the MID.

Another evolution can be observed in terms of competences, as many services saw an extension of their tasks and powers during the war years. The German *Abteilung IIIb* under the leadership of Colonel [Walter Nicolai \(1873-1947\)](#) was assigned from the early war tasks related to the control of the press and then, in 1917, to propaganda.^[20] The *Nachrichtenabteilung* of the German Navy developed specialized sections from 1916, devoted to sabotage and counter-espionage. Also, the *Evidenzbureau* received tasks relating to censorship and political policing, even if finally, the service lost power from 1917, with the decomposition of the Austro-Hungarian Empire. Meanwhile, the French *Deuxième Bureau*, led during the war by Colonel [Charles Joseph Dupont \(1863-1935\)](#), retrieved its competences in counterintelligence in 1914, and in the context of a long war mobilizing considerable resources, developed in 1916 a section specialized in economic intelligence.

This extension of powers caused internal reorganizations and, sometimes friction with other services. For example, the *Deuxième Bureau* underwent several reforms. The SCR was originally attached to it, before both were subordinated in 1915, along with the *Section de Renseignement* (responsible for espionage since 1899), the [propaganda](#), the postal control and the economic section, to a *Cinquième Bureau* which, in turn, disappeared in April 1917. The *Deuxième Bureau* finally reintegrated at that time the SR and the SCR as its own sections. Meanwhile, because of its extensive skills in terms of information, the MI-1 (c) structured itself during the war into six sections (respectively specializing in economic, air, naval, military and political intelligence, the sixth being vested in organization tasks). However, the vagueness of its prerogatives caused clashes with other services, and in particular with that of the [GHQ](#), which was primarily intended for the gathering of information in the battle area. All of them had networks behind the German lines in the occupied territory, and were in constant competition, the GHQ trying in addition to subordinate the MI-1 (c). Relations between these services were particularly tense from 1915 to the end of 1917, and even led to the diversion of some of their rivals' networks to their own profit.

of the war, they transformed their practices. The secret war became more scientific, both in terms of systematization of procedures and of technical and technological developments of the used materials. For example, the use of cyphering methods became stricter, while deciphering techniques became also more sophisticated. Also, old techniques met new technological developments which allowed using them in an innovative way, the large-scale dropping of homing pigeons behind the western front being a striking example. Each service also developed ways to ensure the discreet transmission of information, including increasingly effective invisible inks. The treatment of information, created in ever-increasing quantities, was also systematized: for example, the reviewing of the received reports.

Finally, all these changes led to a considerable increase in the staffs. Most of the services had very limited staff before the outbreak of the conflict, but became throughout the war powerful administrations managing multiple operations and an increasing amount of information. For example, the head staff of the MI - 1 (c) quintupled between 1915 and 1918, while *Abteilung IIIb* employed according to Nicolai more than 1,000 people at its peak, in 1918.

Finally, it should be pointed out that in this war of coalitions, services of allied powers progressively learned to strengthen their cooperation. Certainly, collaboration between the *Evidenzbureau* and the *Abteilung IIIb*, or between the Russian and French services on the one hand, and the French and the British services on the other hand, had begun before the war. However, the Entente powers felt the need to go further. They establish a common office in Folkestone in November 1914, where Belgian, British and French were supposed to coordinate their efforts for the collection of information behind the western front. Next, an allied central office was created in Paris in September 1915, where the different powers of the Entente were represented. It was however in 1918, with the establishment of a true unified command, that the intelligence coordination efforts truly bore fruit.

The End of the War and the Continuation of the Secret War

Intelligence services did not demobilized at the end of the war. The application of the Armistice and then the peace treaties remained central concerns for western intelligence services. However, the Bolshevik danger and the risks of internal destabilization also mobilized their attention, in a world where the rise of ideological extremes became a growing threat. The [treaty of Brest-Litovsk](#) did not pull Soviet Russia out of the scope of the intelligence services. The Entente powers were already monitoring the evolution of the country before the seizure of power by the Bolsheviks, and later, their efforts were concentrated on the new power and the possible ways to contribute to its possible downfall.

In the longer term, structures that appeared before or during the war generally continued their existence, at least in the victorious countries, even though many of them experienced restructuring according to the political developments of each country. The fact remains that the need for permanent and professional secret services, military or civilian, devoted to offensive or defensive intelligence, had become evident. Their actions continued therefore to play an important part in the

life and relations between the states, in times of peace as well as war.

However, the secret war continued to rage after the Armistice – perhaps even more – in the imagination. The Great War helped to introduce the figure of the spy to western societies, but it also to transform its features. The spy was no longer a cowardly and venal being hired by the enemy, but could now be seen as the patriot working in defense of an ideal, ready to sacrifice him or herself for it. And above all, it had become an important, even essential, factor of the war, whose effectiveness was now recognized. This evolution can be seen in book production, with espionage literature enjoying great success during the interwar period. The production of novels made extensive use of the context of the Great War, while numerous former actors of espionage published their memoirs, although among these, the seriousness of the content could considerably vary.

The figure of the master-spy went out of the war with a strengthened prestige, mainly through the glory imbued with mystery that surrounded some secret service heads. This was more or less deserved, and influenced by their own autobiographical writings: Walter Nicolai, head of the *Abteilung IIIb* in Germany, or Maximilian Ronge, head of the *Evidenzbureau* in Austria are cases in point.^[21]

Publications featuring female agents drew maybe even more attention, as if involvement in espionage gave women the opportunity to match the soldiers in heroism. Some of them were depicted as adventurous heroines, often dominated by their attraction for money and power, and by characterized by a free [sexuality](#), perceived as dangerous. The tragic and sensual figure of Mata Hari marked the minds, like the dreaded and widely fantasized one of "*Fräulein Doktor*". However, other female spies were seen as true patriotic heroines. Memoirs of the French [Marthe Richard \(1889-1982\)](#) and the Belgian [Marthe McKenna \(1892-1966\)](#), néé Cnockaert, and naturalized British, were a great success in bookshops despite (or thanks to) their pretty fanciful content.^[22] In western Europe, women who had paid with their lives for their clandestine engagements were even worshiped, resulting in the publication of a genuine hagiographic literature and the erection of monuments honouring their memory.^[23] This cult was particularly focused on three single figures each coming from a different western allied power: the truly international figure of Edith Cavell, for Britain; Gabrielle Petit, the national heroine par excellence of Belgium; and [Louise de Bettignies \(1880-1918\)](#), heroine of the North, in France, who died in detention in 1918.^[24]

Conclusion

The establishment of permanent intelligence services was a phenomenon which appeared during the 19th century, and tended to become mainstream during the Belle Époque, a period very sensitive to espionage matters. The outbreak of the war was accompanied by a wave of spy mania, disproportionate to the actual capacity deployed at that time by the various services. However, the latter never stopped increasing their efforts throughout the conflict in all areas: from espionage itself to the tapping of the enemy line; and through all measures to counteract the opponent's intrigues.

This intensification of the secret war resulted in an extension of their staff, a professionalization of

their practices and a technologization of their methods, especially in the Sigint domain. Ultimately, and despite the growing investment of the states in the matter, and the sacrifices made at the individual level, at no time did intelligence manage to decisively alter the course of the war; it was nonetheless constantly used by decision-makers to guide the conduct of the war. More and more, intelligence contributed to the outcome of the battle, from the tactical to the grand strategic level. None of the parties involved in any case considered itself able to manage war without intelligence, and all were instead concerned by the results that the opponent could record in this area. This emphasis on intelligence, offensive and defensive, resulted after the war in the maintaining in a form or another of permanent intelligence structures. These services, including the figure of the spy in popular imagination, continued to evolve through the entire 20th century until today.

It is to be noted that vast fields remain quasi-unexplored, or at least uncovered by the international literature. While intelligence services of the western Entente powers are the subjects of a rich and high-quality scholarship, their counterparts in Russia, Italy, the Balkan countries or the Ottoman Empire remain by far less known. Even on the German secret services, literature is not abundant. Even for the better known agencies, a lot of aspects of their activities remain out of reach, like their role in secondary theatres, or during the immediate post-war period. Also, many aspects of their inner organization, as well as their relationships with the political or economic spheres and between themselves, are still to be researched. And, if some of the head figures of the services have benefited from good biographical works, their staff and their agents – with the exception of some quasi-legendary figures – remain often mysterious. Some of these topics will probably remain forever mysterious because of the destruction of numerous archives, but the variety of the sources remaining in diverse countries and languages, often little exploited, allow us to think that the scholarship could still disclose many secrets of intelligence and espionage, in order to build a better understanding of their role in the conduct of the war and in the warring societies.

Emmanuel Debruyne, Université catholique de Louvain

Section Editors: [Michael Neiberg](#); [Sophie De Schaepdrijver](#)

Notes

1. ↑ For an overview of the scholarship about intelligence during the First World War, see Larsen, Daniel: *Intelligence in the First World War. The State of the Field*, in: *Intelligence & National Security*, 29/2 (2012), pp. 1-21.
2. ↑ Jeffery, Keith: *The Secret History of MI6*, London 2010. On Smith-Cumming, see also Judd, Alan: *The Quest for C: Mansfield Cumming and the Founding of the Secret Service*, London 1999.
3. ↑ Andrew, Christopher: *The Defense of the Realm. The Authorized History of MI5*, London 2009.

4. † Moritz, Verena/Leidinger, Hannes: Oberst Redl. Der Spionagefall, der Skandall, die Fakten, St. Pölten 2012.
5. † Article 29 of the Annex to Convention (IV) respecting the Laws and Customs of War on Land.
6. † Van Ypersele, Laurence/Debruyne, Emmanuel: De la guerre de l'ombre aux ombres de la guerre. L'espionnage en Belgique durant la guerre 1914-1918. Histoire et mémoire, Brussels 2004. For testimonies of these agents, see also Debruyne, Emmanuel/Paternostre, Jehanne: La résistance au quotidien. 1914-1918. Témoignages inédits, Brussels 2009.
7. † On the sensitive aspect of the remuneration of these agents, see Debruyne, Emmanuel: Patriotes désintéressés ou espions vénaux? Agents et argent en Belgique et en France occupées. 1914-1918, in: Guerres mondiales et conflits contemporains, 232 (2008), pp. 25-45.
8. † Decock, Pierre: La Dame Blanche. Un réseau de renseignements de la Grande Guerre, Raleigh 2011.
9. † Hieber, Hanne: 'Mademoiselle Docteur': The Life and Service of Imperial Germany's Only Female Intelligence Officer, in: The Journal of Intelligence History, 5/2 (2005), pp. 91-108.
10. † Schirmann, Léon: Mata-Hari. Autopsie d'une machination, Paris 2001.
11. † Proctor, Tammy: Civilians in a World at War, New York et al. 2010, pp. 80-82.
12. † As demonstrated by Hiley, Nicholas: Counter-espionage and security in Great Britain during the First World War, in: English Historical Review, 101/3 (1986), pp. 635-670. On the German spies in Great Britain, see Boghardt, Thomas: Spies of the Kaiser. German covert operations in Britain during the First World War, London 2004.
13. † Sellers, Leonard: Shot in the Tower. The Story of the Spies Executed in the Tower of London during the First World War, London 1997.
14. † Van der Fraenen, Jan: Voor den kop geschoten, Executies van Belgische spionnen door de Duitse bezetter (1914-1918), Roulers 2009; Debruyne, Emmanuel/van Ypersele, Laurence: Je serai fusillé demain. Les dernières lettres des patriotes belges et français fusillés par l'occupant. 1914-1918, Brussels 2011.
15. † Vanneste, Alex: Le premier "Rideau de fer"? La clôture électrifiée à la frontière belgo-hollandaise pendant la Première Guerre mondiale, in: Bulletin trimestriel du Crédit communal de Belgique, 214 (2000), pp. 39-82.
16. † Gumz, Jonathan: The Resurrection and Collapse of Empire in Habsburg Serbia, 1914-1918, Cambridge 2009, pp. 42-43.
17. † Moritz, Verena/Leidinger, Hannes/Jagschit, Gerhard: Im Zentrum der Macht. Die vielen Gesichter des Geheimdienstchefs Maximilian Ronge, Vienna 2007.
18. † Alvarez, David: A German Agent at the Vatican: The Gerlach Affair, in: Intelligence and National Security, 11/2 (1996), pp. 345-356.
19. † About espionage and neutrality in the Netherlands, see van Tuyll van Serooskerken, Hubert: The Netherlands and World War 1 - Espionage, Diplomacy and Survival, Boston 2001.
20. † For an overview on German intelligence during the war, see Pöhlmann, Markus: German intelligence at war 1914-1918, in: Journal of Intelligence History, 5/2 (2005), pp. 25-54.
21. † Nicolai, Walter: Geheime Mächte. Internationale Spionage und ihre Bekämpfung im Weltkrieg und Heute, Leipzig 1923; Ronge, Maximilian: Zwölf Jahre Kundschaftsdienst: Kriegs- und Industrie-Spionage, Zurich 1933.

22. ↑ Richard, Marthe: *Ma vie d'espionne au service de la France*, Paris 1935; McKenna, Marthe, *I was a Spy!* London 1932.
23. ↑ Fell, Alison S./Debruyne, Emmanuel: *Model martyrs. Remembering First-World-War Resistance Heroines in Belgium and France*, in: Tame, Peter/Jeannerod, Dominique/Bragança, Manuel (eds.): *Mnemosyne and Mars: Artistic and Cultural Representations of Twentieth-century Europe at war*, Newcastle 2013, pp. 145-165.
24. ↑ Antier, Chantal: *Louise de Bettignies: Espionne et heroine de la Grande Guerre*, Paris 2013.

Selected Bibliography

Andrew, Christopher M.: **Defend the realm. The authorized history of MI5**, New York 2009: Alfred A. Knopf.

Beach, Jim: **Haig's intelligence. GHQ and the German Army, 1916-1918**, Cambridge; New York 2013: Cambridge University Press.

Beesly, Patrick: **Room 40. British naval intelligence 1914-18**, San Diego 1982: Harcourt Brace Jovanovich.

Boghardt, Thomas: **The Zimmermann telegram. Intelligence, diplomacy, and America's entry into World War I**, Annapolis 2012: Naval Institute Press.

Boghardt, Thomas: **Spies of the Kaiser. German covert operations in Great Britain during the First World War era**, Basingstoke 2004: Palgrave Macmillan.

Jeffery, Keith: **The secret history of MI6**, New York 2010: Penguin Press.

Kahn, David: **The codebreakers. The story of secret writing**, New York 1967: Macmillan.

Lahaie, Olivier: **Renseignements et services de renseignements en France pendant la guerre de 1914-1918 (2ème bureau et 5ème bureau de l'Etat Major de l'Armée; 2ème bureau du G.Q.G. (section de renseignement, section de centralisation des renseignements); évolutions et adaptations) (thesis)**, Paris 2006: Université Paris-Sorbonne.

Larsen, Daniel: **Intelligence in the First World War. The State of the Field**, in: *iFirst Intelligence & National Security*, 2012, pp. 1-12.

Marshall, Alex: **Russian military intelligence, 1905-1917. The untold story behind Tsarist Russia in the First World War**, in: *War in History* 11/4, 2004, pp. 393-423.

Massignani, Alessandro: **The Regi Carabinieri. Counterintelligence in the Great War**, in: *Journal of Intelligence History* 1, 2001, pp. 128-144.

Moritz, Verena / Leidinger, Hannes: **Oberst Redl. Der Spionagefall, der Skandal, die Fakten**, St. Pölten; Salzburg; Vienna 2012: Residenz.

Moritz, Verena / Leidinger, Hannes / Jagschitz, Gerhard: **Im Zentrum der Macht. Die vielen Gesichter des Geheimdienstchefs Maximilian Ronge**, St. Pölten 2007: Residenz.

Occleshaw, Michael: **Armour against fate. British military intelligence in the First World War**, London 1989: Columbus Books.

Occleshaw, Michael: **Dances in deep shadows. Britain's clandestine war in Russia, 1917-20**, London 2006: Constable.

Pethö, Albert: **Agenten für den Doppeladler. Österreich-Ungarns Geheimer Dienst im Weltkrieg**, Graz 1998: Stocker.

Popplewell, Richard J.: **Intelligence and imperial defence. British intelligence and the defence of the Indian Empire, 1904-1924**, London; Portland 1995: F. Cass.

Proctor, Tammy M: **Female intelligence. Women and espionage in the First World War**, New York 2003: New York University.

Van Ypersele, Laurence / Debruyne, Emmanuel: **De la guerre de l'ombre aux ombres de la guerre. L'espionnage en Belgique durant la guerre de 1914-1918, histoire et mémoire**, Brussels 2004: Éditions Labor.

Citation

Debruyne, Emmanuel: Espionage , in: 1914-1918-online. International Encyclopedia of the First World War, ed. by Ute Daniel, Peter Gatrell, Oliver Janz, Heather Jones, Jennifer Keene, Alan Kramer, and Bill Nasson, issued by Freie Universität Berlin, Berlin 2014-10-08. **DOI:** [10.15463/ie1418.10317](https://doi.org/10.15463/ie1418.10317).

License

This text is licensed under: [CC by-NC-ND 3.0 Germany](https://creativecommons.org/licenses/by-nc-nd/3.0/de/) - Attribution, Non-commercial, No Derivative Works.