

# About Professionalisation in the Intelligence Community: The French Cryptologists (ca 1870–ca 1945)

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**Abstract.** Social Sciences and especially Sociology and History are very useful to understand how the Cryptographic Field has been shaped in France in 19th and 20th centuries. This paper tackles this issue explaining how and why this Field has been influenced in-depth by a strong process of ‘Professionalism’ under the Ecole Polytechnique rule.

Being neither a Mathematician nor a Cryptologist, but a Social Scientist I belong to a minority in this book: nevertheless I will try to demonstrate how precious were and are Dave’s books for Historians and Political Scientists interested in the study of the Hidden side of the State. I would like to plead for the use of more Sociology in the Intelligence Studies Field. Social Scientists interested in Intelligence or Cryptology often conduct their research studying either the structures or the heroes (that is to say for instance Masterspies or Defectors). Some use the two approaches, but rather rarely. I am personally convinced that the combined use of the study of the structures and that one of some Individuals actors that played a major role – there are many in Cryptography from Herbert O. Yardley<sup>1</sup> to Alan Turing via Marian Rejewski<sup>2</sup> – can find advantages to be completed by the study of a third level, the professional groups (or the Bodies). However that may be, I would consider as an assumption the fact that, broadly speaking, in the Cryptologic field the role of some Individuals is more important than in Intelligence. Dave demonstrated the role of successive Genius that improved Secrets Writings, Ciphers and the use of Mathematics. Until now despite the growing role of Softwares and computing, the importance of Inventors remains. Be that as it may, I would plead not for taking into account the “masses” in the study of cryptology but to promote the study of the collective actors. Indeed, the case of France at the crossroads of 19<sup>th</sup> and 20<sup>th</sup> Centuries shows a main transformation, the blossoming of Bodies among those of the Officials who were in charge of Intelligence within the State.

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<sup>1</sup> See David Kahn, *The reader of gentlemen’s mail: Herbert O. Yardley and the birth of American codebreaking*, New Haven-London, Yale University Press, 2004, 318 p.

<sup>2</sup> See Marian Rejewski 1905–1980. *Living with the Enigma secret*, Bydgoszcz, Bydgoszcz City Council, 2005, 287 p.

## 1 The Lack of Tools to Study the Collective Actors

No Historian can face the study of collective Actors without being confronted immediately to the notion of “Intelligence Community” (IC). Unfortunately these two words written together create the illusion of an Intelligence Body that would be homogeneous. In fact, all the academic literature using this expression does not define the notion, nor try to explain it<sup>3</sup>: in this way the IC is only the addition of several Agencies or of several Bodies. Actually it’s a fuzzy expression. The second consequence is that if most of the structures, the organs or the bureaucracies have been studied, this is not the case of the collective Actors like the Officers, Analysts or the Cryptologists that were employed in these structures. From my point of view it is the consequence of a lack of a sociological approach. In appearance the use of Sociology can introduce some complexity but at the end it provides more light because the past is not only the combination of Individual Actors and of Structures.

As the “IC” the term of “Professionnalisation” has been used by Historians of Intelligence without being firstly carefully defined<sup>4</sup>. Implicitly again, most Histories of Intelligence conclude that at the end of 19<sup>th</sup> Century many European IC were on the way of Professionnalisation. This is not my stance and I would begin considering this as an assumption that must be confirmed. Professionnalisation has been in fact used by Historians and political Scientists as a synonym for skills. But one thing are the skills of Individuals, another one is the capacity of a Body to train its members. Incontestably, the latter is a sign of a modernisation Process in a State. I would also use the recent definition of Martin Rudner who insists on some features: the management of human capital and the teaching of knowledge to new entrants in the Body<sup>5</sup>.

In dealing with the study of French Cryptologists under the Third Republic (1870–1940), I would have also to consider if these peculiar men, most of them coming from the Army or from the Navy, behaved only as Individuals or if they were strictly linked to the Bodies that appeared at the end of the 19<sup>th</sup> Century. It could help us to understand if the French Intelligence Apparatus based partly on the quality of Cryptography at the beginning of the 20<sup>th</sup> Century was the result of some Individuals or of the renewal of the French Army after the 1870 Defeat.

## 2 The French “Intelligence Community” as a Battlefield

During the first half of 19<sup>th</sup> Century there was two unique Official Bodies in charge of Intelligence, the Diplomats and the Police Body. From the beginning of the 19<sup>th</sup> Century until today, the history of Intelligence in France - and abroad - is a story of permanent

<sup>3</sup> See for instance: Jeffrey T. Richelson, *The US Intelligence Community*, New York, Vetview press, 2008, 592 p.

<sup>4</sup> Christopher Andrew and David Dilks (ed.), *The missing dimension. Governments and Intelligence Communities in the Twentieth Century*, London, Macmillan, 1985, p. 6 et 7.

<sup>5</sup> See Martin Rudner, “Training and educating US Intelligence Analysts”, *International Journal of Intelligence and Counter Intelligence*, 2009, 22: 1, p. 139 et 142.

rivalries, sometimes of turf wars between the bodies that were in charge of Intelligence. At the beginning of the 19<sup>th</sup> Century there was a balance between Diplomats abroad and Police in the domestic Area, each of these actors being alone and powerful in its respective field. If there is a natural tendency for organisations belonging to the same field to fight each other there was ideological and political reasons as well that explain such attitudes. Despite the trend of a dual dominance (both Police and Diplomatic) on Intelligence activities, officers who played an important role in Intelligence during the Napoleonic period – on battlefields of course, but also to a lesser extent in domestic Intelligence - tried to emerge on the Intelligence scene.

Three times some Officers attempted vainly in 19<sup>th</sup> Century to create Intelligence organs within the Army.

Under the July Monarchy, in 1826, a so-called “section de statistique”<sup>6</sup> was created within the “Dépôt de la Guerre”. There, Staff Officers and “ingénieurs-géographes”<sup>7</sup> gathered theoretically every kind of knowledge that referred to Foreign Countries in which the French Army campaigned or would have to. But the “section” was only a board created for a publishing aim without any specific staff abroad to gather information and the other parts of the French administration refused to cooperate with the “Dépôt de la Guerre”. The section slowly vanished after mid-19<sup>th</sup> Century. The second attempt by officers to play a role in State Intelligence was more successful but was not a French specificity. In January 1860, Napoléon the Third, decided to appoint four Military Attachés<sup>8</sup> in Saint-Petersbourg, Berlin, London and Vienna<sup>9</sup>. Like in Prussia<sup>10</sup> these officers were closely linked to the Emperor and they collected not only military Intelligence but political information as well. Nevertheless, these first Intelligence Officers were less numerous than Diplomats.

Finally, after the Prussian Sadowa Victory in Austria, Napoléon the Third and the French High Command impressed by Prussian Strength decided to implement a profound Military Reform. For the first time since 1815, Intelligence was a part of the Military Agenda. Marshall Niel, the minister of War, decided to (re-)organise the collection of Military Intelligence that relied only at this time on the Military Attachés. Napoléon the Third and Niel decided to transform the new 2<sup>nd</sup> Bureau in a structure that would gather Open Source Intelligence and Covert Intelligence. They undertook, under lieutenant-colonel Jules Lewal’s<sup>11</sup> command, head of the new Second bureau, specific and covert missions devoted to the collection of Intelligence

<sup>6</sup> *Mémorial du Dépôt général de la Guerre*, Paris, Ch. Picquet, 1828, p. xvij.

<sup>7</sup> A special Military body created at the end of 18<sup>th</sup> Century in order to draw maps.

<sup>8</sup> The first French Military Attachés (to Embassies) appeared in fact after 1826 thanks to the 1826 ordonnance that allowed (chap. II, art. 14, al. 2, see *Journal militaire officiel*, 2<sup>e</sup> semestre 1826, n° 16, p. 609) the French General Staff to appoint Officers to Embassies. The first were sent to Madrid and to Constantinople.

<sup>9</sup> See *Mémoires du Maréchal Randon*, Paris, Typographie Lahure, 1877, tome II, p. 49. Randon was the Minister of War in charge of implementing the new Military Attachés.

<sup>10</sup> See Gordon A. Craig, « Military diplomats in the Prussian and German service: the attachés, 1816–1914 », *Political Science Quarterly*, vol. LXIV, 1949, pp. 65–94.

<sup>11</sup> SHD, DAT, 7 Yd 1616 (personnel file).

in the North German Confederation<sup>12</sup>. Before their departure the Staff Officers for whom covert activity was not in their habits received precise instructions to dissimulate their work. From Spring 1868 to December 1869 about 30 Officers were sent as spies on the other side of the border for 30–40 days far-reaching missions<sup>13</sup>. The High Command decided to end the covert missions in December 1869 because some officers had been arrested and their names published in the Press. The absence of global coordination with the Foreign Office was another weakness of the State Intelligence organisation. Moreover it occurred too late. With regards to the attempt as establishing an Intelligence Military Organ in peace time, the third one, that occurred just before the 1870 War, was again a failure.

French military defeats in 1870 like later in 1940 have always been a strong spur used to implement far-reaching Reforms. During the first decade of the Third République, the High Command rebuilt a new army, partly drawing inspiration from the German Army. Among the mid-level officers who played a discrete but effective role was Emile Vanson<sup>14</sup>, who was one of Lewal's officers sent for spying in Germany in 1868. Vanson was the real inventor of the modern French General Staff in 1874 with its partition into 4 bureaux<sup>15</sup>. So he created the "2<sup>nd</sup> Bureau"<sup>16</sup> (a "G-2") and also a "section de statistique"<sup>17</sup> at its margin. He was the first official in France to understand that it was crucial to separate the collection of Intelligence from its analysis and to set up these two tasks in two different organs and to entrust them to two different kinds of officers. From 1874 to 1914, the 2<sup>nd</sup> Bureau comprised on average between 20 and 30 officers to centralise and to analyse Intelligence and the "section" never more than three officers. The section had two different tasks: collecting by covert means abroad - that is to say spying - and running the counter-espionage on the French territory as well. With Vanson's 2<sup>nd</sup> Bureau and "section de statistique" two specific bureaux emerged, designed to be the core of the Intelligence State - in fact the first modern Secret Services<sup>18</sup>. In 1874 the formalisation of Public Intelligence activities was achieved and so the very quick uprising of the Military Body within the State completed. Moreover from the

<sup>12</sup> SHD-AG, M.R. 1577, Memo for the Minister of War with regards to the Mission on the Rhine, December 12th, 1867, 5 p.

<sup>13</sup> Reports and maps done during the mission are in SHD-AG, M.R. 1577 to 1581.

<sup>14</sup> See his personnel file: SHD, DAT, 10 Yd 114.

<sup>15</sup> Decree n° 91 (March 12th, 1874) on the reorganisation of the General Staff, *Journal Militaire officiel*, 1<sup>er</sup> semestre 1874, p. 230–231. On the direct role played by Vanson in this Reform, see général Vanson, « Deux documents concernant la réorganisation de l'armée en 1873 », *Carnet de la sabretache*, 1896, 4<sup>e</sup> volume, p. 148–159.

<sup>16</sup> This 2<sup>nd</sup> Bureau was different from that one created at the end of the 1860 s in the Dépôt de la Guerre. One of the major difference was that the new one was part of a General Staff that did not exist before 1870.

<sup>17</sup> Who became in 1899 « section de renseignements », then « service de renseignements ».

<sup>18</sup> The main part of the 2<sup>nd</sup> Bureau archives remained and are today in SHD (7 N 653–677). The archives of the « section de statistique » were partly destroyed, partly disseminated after the Dreyfus Affair. One can find some hints and traces of them in the « police spéciale » archives (Archives nationales, F<sup>7</sup>) and in the archives of the Préfecture de Police.

beginning of the 1870s the Officers obtained to have a part of the French Police Body under their command for the counter-espionage task. A major step in the History of French Intelligence was taken. It was a real Triumph for the Military Body.

### 3 The Uneven Professionalisation of the Civil Servants in Charge of Public Intelligence

Among the three Official Bodies that were in charge of Intelligence, the Professionalisation Process was rather uneven.

The Diplomatic Corps was the oldest one. Based for two centuries and a half on social and cultural criteria – the diplomats being recruited in the Aristocracy – the situation evolved from mid-19th Century. From then on the French Foreign Office set up entrance examination. The most important criterion was the proficiency and not the social origin and the background. The recruitment was enlarged to the upper middle-class but it remained elitist. Nevertheless it was only a consequence of the better education received in these classes. The democratisation of the Diplomatic Corps was reinforced from the 1880s thanks to a proactive policy implemented by the French Republicans<sup>19</sup>. Moreover a growing part of the Diplomats were educated in a private University, the « Ecole libre des sciences politiques » founded in 1872<sup>20</sup> as a response to the 1870 Defeat. There the young men learned everything that was necessary to succeed at the Quai d'Orsay's entrance examination. In no more than a decade the Ecole libre obtained the best results and a quasi monopoly on all entrance examination of the French Civil Service. Incontestably, in the second half of 19<sup>th</sup> Century the Diplomatic Corps was one the most professionalised in France compared to other high ranking civil servant Bodies.

A short sociological overview of the Police Body – the second one to be in charge of Intelligence, that is to say political Surveillance and Counter-espionage – shows a very different case. This Police (called « police spéciale ») had been created in 1855 and had never been abolished thereafter. This part of the Police was not the most important quantitatively. Yet the Police Body experienced at the end of 19<sup>th</sup> Century a process of professionalisation: one began to recruit Policemen trying to take into account Proficiencies and specialised schools were set up<sup>21</sup>. Among the numerous parts of the Police Body, the police spéciale – the one in charge of Intelligence - was aside because of its specific missions. That is why the French Home Office paid attention to its recruitment. This is the reason why on average, these Policemen and Police Officers, these Constables had a better background than the other. But there was not any School, not any kind of education or training for the « Police spéciale ». This Police activity, including counter-espionage, was a practice

<sup>19</sup> See Isabelle Dasque, *Monsieur de Norpois: les diplomates de la République (1871–1914)*, thèse de doctorat d'histoire contemporaine sous la direction de Jean-Pierre Chaline, Université Paris IV, 2005, 960 p.

<sup>20</sup> See S. Laurent, *L'École libre des Sciences Politiques de 1871 à 1914*, Institut d'études politiques de Paris, 1991, 180 p.

<sup>21</sup> See Jean-Marc Berlière, « La professionnalisation de la police en France: un phénomène nouveau au début du XX<sup>e</sup> siècle en France », *Déviance et société*, XI-1, mars 1987, p. 67–104.

learned « on-the-job ». Moreover one should remind the fact that the « Police spéciale » was the most important Body in charge of Intelligence: the total strength of this Police was by far the most numerous compared with the two other Bodies. Moreover it played a strategic role by its presence on all the French Territory.

With regards to the Military Officers the most recent entrant on the Intelligence scene the situation is more complex. Indeed the existence of entrance examination for specialised schools was ancient: the Ecole Polytechnique (called « X » hereafter) had been created in 1794 and the Ecole spéciale militaire (or « Saint-Cyr ») in 1802. There the military cadets were trained and they chose after the graduation a second School where they received a more specialised training (Cavalry, Infantry, Engineering or Artillery). Later in their career they had the opportunity to apply for a third School: the Ecole supérieure de Guerre created in 1876. To enter into this *Kriegsakademie* they had to take an examination whose result was to select those who were able to become Staff Officers and who could have access to the highest ranks. Undoubtedly among the three Bodies, the military one was the most specialised. Nevertheless the situation was very different for the Officers who chose after 1870 the path to Intelligence. As the « police spéciale » the emerging Intelligence Officers learned « on-the-job ». The unique skill that was required to be appointed in Intelligence organs was the ability to speak another Language that was most of the time German or Italian. The situation evolved after the World War I, when the French General Staff decided to send the applicants for Intelligence careers to a School created in 1921 by the University in Mayence<sup>22</sup>, the Centre d'études germaniques (CEG). This School disappeared in 1940 but in April 1942 the French General Staff created a more specialised School than the CEG, an « Intelligence School » located in Lyon where Intelligence Constables and Intelligence Officers met and received a common training. The School disappeared with the German Occupation of Southern France in November 1942. But one must recall that the Intelligence Officers had not been proactive in 1921 like in 1942 in this process and had not been at the origin of the Training structures. They were reluctant to accept the idea that Intelligence could be learned in Schools or through Courses. If professionalisation was a reality for Officers broadly speaking, it was less right for the very few who chose Intelligence.

#### **4 The Belated Uprising of the Military in State Decyphering Activity**

At this Time cryptography could be considered as a sub-field in Public Intelligence. The Decyphering activity was splitted into three Ministries. The oldest one was the Ministry of Foreign Office (*Quai d'Orsay*), then came the Home Office and later the War Office.

The Civil servants in charge of cryptography inside the Ministry of Foreign Affairs had ties with the Intelligence Officers because the most skilled experts came from the Army or from the Navy. The Civil cryptologists in the *Quai d'Orsay* were also connected

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<sup>22</sup> Located in German occupied territories by the French Army, then after 1930 in Strasbourg.

with some independent experts in the Cryptographic field. The cooperation with Officers began in second half of the 19<sup>th</sup> Century. As David wrote it in 1967 the Marquis de Viaris, a former Navy Officer who had become cryptologist, was employed by the Quai d'Orsay to reorganise the « bureau du chiffre » in the 1880s<sup>23</sup>. But after that Viaris remained one of the most important expert whose advice was important in case of difficulties<sup>24</sup>. The Quai d'Orsay relied also on the capitaine Bazeries, an Officer that had been appointed to the Quai for ten years<sup>25</sup> and who continued to work free-lance for the Diplomats after being retired<sup>26</sup>.

The Home Office became an actor of Public cryptography with the development of the Telegraph. Regulations (two laws in 1837 and in 1850 and a decree in 1851)<sup>27</sup> gave this Office the monopoly on the Telegraph network and the right to monitor all the telegrams whatever they come from. The strong Public Surveillance on the communication<sup>28</sup> and, in a broader extent, of all political or social activities allowed the Home Office to dispatch the intercepted Telegrams between the Foreign Office, the War Office and to keep for itself all the material concerning the political militants<sup>29</sup>. The Home Office tried to train its experts but used also Military Officers that were in advance on Decyphering.

## 5 The Growing Professionalisation of Military Cryptologists: The “X” Path

The Military surge within the State Decyphering Activity is not an hasard. This fits into a broader process that is to say the emergence of the Military Officers Corps in the French Intelligence Community. As it has been said, in less than one decade (from 1870 to 1880) the Military succeeded, first, in building modern Intelligence organs inside the General Staff and then, in obtaining from the Political Authority to have the “police spéciale” under their command. It's evident that the Military cryptologists benefited from the new situation.

The role played by Officers in the State Cryptographic Activity especially as experts for the Home Office and for the Foreign Affairs highlights the fact that they belonged

<sup>23</sup> David Kahn, *The Codebreakers. The Story of secret writing*, New York, Macmillan publishing, 1967 [rééd. 1996], p. 242.

<sup>24</sup> S.H.D.-A.G., 1 M 2352, lettre du ministère des Affaires étrangères ou au ministre de la Guerre, 27 décembre 1900.

<sup>25</sup> SHD, DAT, 6 Yf 5578 (Bazeries personnel file).

<sup>26</sup> On Bazeries see Octave Homberg's memoirs (*Les Coulisses de l'histoire. Souvenirs 1898-1928*, Paris, Librairie Arthème Fayard, 1938, p. 39). Homberg was head of the bureau du chiffre in the Quai at the end of 19<sup>th</sup> Century. See also S.H.D.-A.G., 1 K 842, Marcel Givierge, *Etude historique sur la section du chiffre des origines à 1921. Historique I*, s.l.n.d., p. 16.

<sup>27</sup> Law from May, 6<sup>th</sup> 1837; November, 29<sup>th</sup> 1850 and a decree from December, 27<sup>th</sup> 1851.

<sup>28</sup> See S. Laurent, *Politiques de l'ombre. État, renseignement et surveillance en France*, Paris, Fayard, 2009.

<sup>29</sup> Cf. Commandant Cuignet, *Souvenirs de l'Affaire Dreyfus. Le Dossier Trarieux-Tornielli-Reinach*, Paris, Société anonyme d'édition Belleville, 1911, p. 13, footnote 1 and Marcel Givierge, *Etude historique sur la section du chiffre des origines à 1921. Historique I*, s.l.n.d., p. 16 (S.H.D.-A.G., 1 K 842).

to professionalised bodies in which the recruitment was based on skills and proficiencies. Despite the fact that some of the experts like Bazeries were men who entered the Army as privates that is to say with a basic education, other like Valério and Viairis came from Military Schools. This was a sign of the forthcoming evolution. Indeed, from the last quarter of 19<sup>th</sup> Century Officers coming from the Ecole Polytechnique (“X”) with specific knowledge in Mathematics established themselves as leaders in the Cryptographic Field. They were strongly helped by the new dominance of Officers in the Intelligence Field, even if they were not at this time considered by their *camarades* as real Intelligence Officers but as technical experts. These men have been scholars from our current point of view, but at this time they were only considered as such experts.

Nevertheless, as quickly as the Intelligence Officers thirty years before they succeeded in becoming recognized as experts by the other parts of the so-called Cryptographic Community. One man, François Cartier (1862–1953), played a major role in the building of new cryptographic organs inside the General Staff and inside the Minister of War. Thanks to the highest quality of his work in Cryptography he succeeded in establishing the specialised Military Officers in the Cryptographic Community. François Cartier came from the X and has been then specialised in Artillery and Military Engineering in a time, of course, during when all calculation was a mental work. He was appointed in 1900 in the Military Wireless Telegraphy and the same year as secretary of the Military Cryptographic Committee. Besides being the first Officer to have excellent skills in Cryptography, he was also the first to have understood the necessity to built permanent organs. In 1908 despite being only a captain he met the minister of War<sup>30</sup> and outlined the necessity to create an interdepartmental committee on ciphers. This committee created only six months later was used by Cartier as a tool to establish the Officers position in the State Cryptographic Field, despite the Foreign Office’s refusal to join<sup>31</sup>. With regards to Cryptography, this Committee was the main tool used by the Military to dominate the Home Office and the Colonial Office. Cartier was the first secretary of this committee and was helped by a younger polytechnicien, Marcel Givierge (1871–1931). From 1912 to 1920, Cartier was head of the minister of War Cipher’s section (« section du chiffre »). He was at the origin of the first courses in Cryptography in the Ecole supérieure de Guerre implemented in 1913<sup>32</sup>. Moreover during all the First World War he ran the Cryptographic Department of the French General Staff. During the WWI Cartier appointed many alumni from the Ecole Polytechnique in the Cryptographic Department. During and after the World War I reserve Officers like Georges Painvin (1886–1980), for instance, played a very important role in helping their eldest *camarades* from the Ecole Polytechnique and who had chosen after a military career. This shows that the Ecole Polytechnique became very discreetly and slowly the privileged access to the Cryptographic field. In this successful evolution some talented and clever Officers like Cartier and Givierge used their command of

<sup>30</sup> S.H.D.-A.G., 1 K 193, fonds privé du général Toutée.

<sup>31</sup> S.H.D.-A.G., 1 K 842, Marcel Givierge, *Etude historique sur la section du chiffre des origines à 1921. Historique I*, s.l.n.d., p. 18.

<sup>32</sup> Cf. S.H.D.-A.G., 1 K 842, Marcel Givierge, *Etude historique sur la section du chiffre des origines à 1921. Historique I*, s.l.n.d., 3<sup>e</sup> époque, p. 3.

Cryptography but also their ability to use institutions. Thanks to the growing role of Mathematics in Cryptography, from Cartier on the Ecole Polytechnique was implicitly recognized as the unique School for the training of future Cryptologists. During the main part of 20<sup>th</sup> Century Officers graduated from Polytechnique remained at the core of the Decyphering Public Activity even if the Ecole normale supérieure competed with Polytechnique after WWII. This evolution that shows that professionalisation became more marked for Cryptologists compared to Intelligence Officers does not mean that a specific Body appeared. The first time this Idea appeared was in January 1942: at this time Admiral Darlan, commander-in-chief of the French Army wanted to create a specific Body and a Decyphering School. The project vanished with his assassination that occurred at the end of the year.

The end of the 19<sup>th</sup> Century is a real break in the Building Process of the French Public Surveillance and Intelligence Machinery: from 1870 on the Army established itself at the core of it. This situation lasted until the end of the WWII but had long-time effects. In the Military shelter built by Intelligence Officers, the cryptologists settled. Among them, the Officers graduated from the Ecole Polytechnique prevailed, by far. Their skills and an actual professionalisation process explain for the most part this achievement but the esprit “de corps” matters also a lot. It would be narrowing to reduce the evolution of Cryptology in France to some key persons: social and cultural reasons had a main role in the rise of the peculiar French codebreakers.



<http://www.springer.com/978-3-662-49300-7>

The New Codebreakers

Essays Dedicated to David Kahn on the Occasion of His  
85th Birthday

Ryan, P.Y.A.; Naccache, D.; Quisquater, J.-J. (Eds.)

2016, XIV, 551 p. 135 illus., Softcover

ISBN: 978-3-662-49300-7