Operation Paula: a Success Story Largely Ignored for Polish Code Breakers?

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PLAN

TEXTE

Introduction

1   When fighting on the Western Front flared up on the morning of 10 May 1940, the French General Staff had at its disposal a source of intelligence of prime importance. While the British decoding of Enigma was popularised at the turn of the 21st century through the belated recognition of the British mathematician Alan Turing, it is less well-known that the French had possessed this same decisive weapon since January 1940. The people responsible for this intellectual feat were young Polish academics, who had taken refuge in France following the fall of their country and were placed at the disposal of the French intelligence services. Among the many messages decoded was the forecast of an imminent *Luftwaffe* offensive, called "Operation Paula" (*Unternehmen Paula*), scheduled for 3 June 1940, with an objective at least as symbolic as it was strategic: the Paris region.

2   This study does not constitute a descriptive evocation of Operation Paula; although it is little known, it has already been studied by other historians.[1] This episode of the Battle of France is analysed here through the prism of the information provided by the team of Polish codebreakers who had taken refuge in France. Forming a non-native group within the French intelligence services, these young mathem-

aticians provided decisive elements that made it possible to learn about the detailed plan of Operation Paula several days in advance. The absence of a large-scale reaction on the part of the Air Force, which still had several hundred aircraft at its disposal at the beginning of June, raises questions. Why did the French staff not make better use of the first-hand information obtained by the Polish codebreakers? Was Operation Paula part of the sum of the French army's endemic problems in the spring of 1940? The complex beginnings of the Allies' use of Enigma's decoding are an underlying theme of this air attack. This article thus evokes the contribution of the Polish codebreakers in the detection of the Paula operation, and analyses the perceptible failings of the French army, coupled with a consolidated examination of the results obtained by the *Luftwaffe.*

3   Operation Paula was made public in 1973 by General Gustave Bertrand, one of the heads of French intelligence in the 1930s and the initiator of fruitful Franco-Polish links in the field of codebreaking. His book, *Enigma ou la plus grande énigme de la guerre*, (*Enigma or the Greatest Enigma of the War*) was poorly developed and went largely unnoticed when it was published.[2] The subject, on the other hand, received widespread attention a few years later in Poland thanks to the historian Władysław Kozaczuk, (W *Kręgu Enigmy*, "In the Circle of Enigma"),[3] and still remains a particularly popular theme. This article is based on the archival documents mentioned in Bertrand's memoirs, supplemented and tempered by Polish, German and British sources.[4]

1. The decoding of Enigma, from Warsaw to Gretz-Armainvilliers

4   At the end of the 1920s, the German army began to integrate the new Enigma machine, capable of encoding transmissions in a manner *a priori* unbreakable. The French and Polish intelligence services, particularly vigilant towards their shady neighbour, quickly became interested in this new electromechanical weapon, without managing to penetrate its mysteries. In 1931, the French codebreakers benefited from the unexpected services of a German double agent, Hans-Thilo Schmidt, employed at the German Cipher Office, who complacently provided Enigma's mechanisms in exchange for a large fee. However,

the French codebreaking services deemed this information insufficient to deal with the machine. Major Gustave Bertrand, head of Section D of the intelligence service in charge of breaking Enigma, finally turned to his Polish counterparts. The Warsaw Cipher Office called on three young prodigies from Poznan University, Marian Rejewski, Henryk Zygalski and Jerzy Różycki. The first succeeded in overcoming Enigma at the end of 1932, then the three mathematicians regularly decoded three-quarters of the German army's messages until the beginning of 1939. [5]

5   In the autumn of 1939, Polish codebreakers fleeing their country under Nazi control were taken in by Gustave Bertrand and gathered in Gretz-Armainvilliers, southwest of Paris. Now in the service of the French army and financed by it, the exiled mathematicians worked at the "PC Bruno" in the *château de Vignol*, sheltered in a forest. It was in this highly secret location that the Polish codebreakers succeeded in breaking the Enigma code again from January to June 1940, repeating their pre-war success against the German encryption machine. They also provided the Allies with all their decoding systems, allowing the British in particular to start taking over operations at their secret centre at Bletchley Park. Consisting of several teams of codebreakers (including Spanish Republicans), the Poles formed "Source Z" within the PC Bruno. The work of the Polish mathematicians provided vital information in the spring of 1940 in the context of the Battle of Norway, and then during the German offensive in the west on 10 May. At the end of the month, the codebreaking included the name of a mysterious operation to come: Paula.

2. A dual purpose: to destroy the French air force and terrorise the Parisians

6   Two days after the collapse of the Sedan front, on 16 May 1940, Herman Göring, commander of the *Luftwaffe*, was largely confident of a German victory and ordered General Hans Jeschonnek, his chief of staff, to prepare the bombing of the airports around Paris in order to finish off the French air force as quickly as possible. According to historian David Irving, Göring cried out: "Let my planes cover the skies

of France!"[6] On 24 May 1940, the Allied situation changed rapidly. The French army and the British Expeditionary Force were defeated in Belgium and pushed back to the Dunkirk area, from where the British had to organise a rapid evacuation. In Weisung Nr. 13, issued on the same day, Adolf Hitler ordered the *Luftwaffe* to reduce the Allied forces on the Channel beaches.[7] Despite the efforts of the German air force, the British achieved the strategic feat of evacuating 330,000 Allied soldiers.

7   In parallel to the matter of Dunkirk, the *Luftwaffe* staff continued to develop the decisive supremacy demanded by Göring, by preparing two massive air strikes against airfields and aeronautical production plants in the south of France, then in the Paris region. These strikes were to precede the *Fall Rot* ("Case Red"), the second phase of the Battle of France, scheduled to begin on 5 June 1940, with the aim of taking Paris and bringing down France. The *Luftwaffe* was supposed to destroy the remnants of the French air force and open the way for German armoured formations.

8   The first attack was carried out by *Luftflotte* 3 against the south of France along the Rhône, with Lyon and Marseille as the main targets. The operation was preceded by an aerial reconnaissance, which located 14 warships and 48 transport ships in the port of Marseille, and about 300 aircraft on the airfields and 3,600 supply wagons in the railway hubs along the Rhône. The end of May brought rainy weather and low clouds, and operations were delayed until 1 June 1940. That day, 36 Heinkel-111 bombers attacked the Lyon-Marseille rail link at seven successive points and continued on to the city of Marseille, where the British liner *Orford* was sunk.[8] The airfields were not damaged, the French air force and a Polish fighter squadron managing to counter-attack and inflict some losses on the attackers.[9] The next day, 2 June 1940, a new offensive against Lyon-Bron airport destroyed about fifteen aircraft on the ground.[10] These two low-intensity attacks only caused minor damage to the French air force, and were only a prelude to the second offensive on the Paris region, which was far more substantial.[11]

9   According to the diaries left by Lieutenant-Colonel Hoffman von Waldau, the air corps commander, Operation Paula was planned from 23 May 1940 onwards as "a very carefully prepared strike". The opera-

tional objective was to destroy the aeronautical factories and neutralise the airports in the Paris region where German reconnaissance flights had detected the presence of around 1,150 French fighters and bombers. The strategic aim was "to exert a significant influence on the morale of the capital",[12] by spreading terror among the civilian population. The operation thus reflects the *Luftwaffe* doctrine in force at the beginning of the Second World War, based, in order, on the acquisition of air control, support of ground troops and strategic bombing of cities.[13] While the *Luftwaffe* had already proved its effectiveness in the accomplishment of these first two tasks since September 1939, its ability to carry out the last task had yet to be demonstrated. Only a few terror raids were carried out, mainly against Warsaw and Rotterdam, with uncertain concrete results in the context of *blitzkrieg* campaigns where the decision had already been taken on the ground. Operation Paula was thus a new test for the strategic aims of the German air force. The number of troops involved was significant, with 640 bombers and 460 fighters participating. [14]

10   Despite the loss of nearly 800 aircraft in the first two weeks of the campaign, the French still had more than 2,000 aircraft in theory, but only a third of them were operational, *i.e.* 599 aircraft (340 fighters and 170 bombers)[15]. Several hundred were based at airfields in the Paris region, including a dozen new Dewoitine D.520s. About forty British aircraft were also present, remnants of the Advanced Air Striking Force. The attack was to take place on 3 June 1940.

3. An operation revealed in advance by Polish codebreakers

11   According to the memoirs, diaries and accounts left by the French and Polish protagonists, Operation Paula turned out to be anything but a surprise for the Air Force. The code name "Paula" was intercepted and decrypted for the first time on 26 May 1940 at 00:37; information that "immediately attracted attention and stimulated the minds",[16] notes Gustave Bertrand in his memoirs. The details of the operation were gradually revealed. The head of Section D lists one decoded message from 29 May, six from 30 May and three from 31 May 1940. The last five were read on 1 June. The French intelligence

services had the same information received by the heads of German air units, such as these two messages intercepted in the early hours of 30 May, reflecting the *Luftwaffe*'s lack of preparation:

> – 01:10 *Angriff Paula hier umbekannt. Erbitten hierzu Befehle. Kampf-gruppe 77.*[17]
>
> [Translation into French and interpretation by Gustave Bertrand]: *Le 77ᵉ Groupe de combat demande des ordres au 8ᵉ Corps aérien, car il ignore tout de l'attaque Paula, alors qu'il doit visiblement en faire partie.*
>
> [The 77th Battlegroup asks for orders from the 8th Air Corps, as it does not know anything about the Paula attack, although it must obviously be part of it.]
>
> – 01:50. The 8th Corps replies:
>
> *Paula = Paris.*[18]

12   The information contained in the letter indicates the precise targets, including the aeronautical factories at Corbeil, Melun and Nangis. Several of the units participating in the raid are identified, with their routes and schedules. Thus, the bombers of the KG 3 were to receive protection from the fighters of the ZG 6 at 15:00, over "Sainte-Marie", then head together towards Paris, and finally return south of Sedan[19]. Originally scheduled for 30 May, the attack was postponed to 3 June due to bad weather. The messages of 2 and 3 June could not be decoded in time, but there was already enough information to prepare a countermeasure.

13   Gustave Bertrand reported on Operation Paula on 30 May, once the Paris region was clearly identified. He spoke directly to the Commander-in-Chief of the Air Force, General Joseph Vuillemin. According to Bertrand, the latter replied that he was hardly in a position to oppose the attack, "because he did not have the 100 fighter planes needed, or else the front would be depleted".[20] However, three days earlier, Vuillemin had just reorganised his forces, withdrawing most of his aircraft from the front line in order to protect the capital, while doubling his strength to 120 aircraft in ZOAN (*Zone d'Opération Aérienne Nord*, the northern air operation zone, covering Paris).[21] The interception order given to the fighters (Operation "Tapir") had to be broadcast by the powerful transmitter installed on the Eiffel Tower, giving the pilots about twenty minutes to take off. In theory, the

French defence, reinforced by several anti-aircraft units, was able to oppose Paula.

14 In the early afternoon of 3 June 1944, as announced by "Source Z", ground observers detected 640 enemy aircraft heading south, soon followed by a Potez 631 reconnaissance aircraft -which was quickly shot down. The radio transmitter at the Eiffel Tower transmitted interception orders as expected by Tapir, but the system immediately failed. The same serious shortcomings observed since 10 May struck the French army again, with a general failure of transmissions and a slowness of execution that was out of keeping with the fluidity expected for such operations. Two-thirds of the groups received take-off orders, some of them taking off under the bombs, leaving 80 aircraft to intercept nearly 1,100 adversaries. [22]

15 On the ground, Gustave Bertrand came to indulge in "the luxury of witnessing this spectacle". [23] The head of the French codebreakers, who had been disillusioned with the French general staff for ten years, was no stranger to disappointment. After informing one of his officers living in Melun to send his family on a picnic in the shelter of a forest, Bertrand watched the German attack take place with impunity in a bistro in the 7th arrondissement:

> There, in the shade of a "well-drawn" half, I waited for the events, not for long because, at 3pm, the first sirens made their sinister howls heard: the panic was general, the psychosis was such that people could be seen walking around with their gas masks, on their faces of course! But the alert was getting closer, we heard the first bursts [24].

16 In the daily *Wehrmacht* reports, the operations were described as a remarkable success. "104 [French] aircraft were destroyed in air battles, about 300 to 400 aircraft in hangars and airports." [25] Euphoria reigned at Hitler's main headquarters, where General Franz Halder, Chief of Staff of the Army, wrote in his war diary:

> On 4.6 [error, 3 June], allegedly very successful air attacks by our air force were carried out against enemy fighter bases in the Paris area. The defence was weak. A very great success. One participant reported: "It was like an air parade over Paris on the occasion of the Party Congress." [26]

17   In fact, even though the attackers were hardly hindered by the French defence, the results were insignificant. Only 15 factories were hit by the bombing, with minor losses. Of the 16 airports bombed, only six were seriously damaged. Twenty aircraft were destroyed on the ground, with 51 personnel killed and 107 injured. In addition, 15 fighters were lost in aerial combat, *i.e.* 1/5th of the forces involved. German losses were low -only 10 aircraft, including 4 bombers. However, two wing commanders, *Oberste* (colonels) Joseph Kammhuber and Gerd von Massow, suffered the affront of being among the few bombers shot down, and were briefly taken prisoner.[27] Although the civilian losses were high, they remained relatively moderate given the density of the urban fabric of the Parisian suburbs and the number of bombers involved, with 254 killed and 906 wounded[28]. Future Allied raids on the same targets were to be more deadly from 1942 onwards, although the concern was to avoid civilian casualties.

4. Disillusionment shared by the British and the Poles

18   Why did the French High Command not react more effectively to the information provided by the decoding of Enigma? Apart from the endemic transmission problems already mentioned, the reasons are endogenous to both the intelligence services and the French army in general. Contrary to the British codebreaking system centralised at Bletchley Park, there was no nerve centre for the French services, which were fragmented into several rival entities. Bertrand's Section D was only one of many, including sections in the Air Force, the Army, the Navy and the diplomatic services. In particular, there was a strong rivalry between Section D and the *Service du Chiffre* of the Army Staff, whose codebreakers proved unable to deal with Enigma. Bertrand's strong personality and low rank (captain) further complicated matters, cementing the French decoding fiasco from the beginning of the 1930s. This failure was rooted in the blatant lack of modernity of the French army almost a decade after the end of the First World War, "ossified", "paralysed" or "sclerotic" to use the disillusioned words of a witness from the general staff at the time, General André Beaufre.[29] Resting on its victory laurels, the French army showed itself incapable of renewing itself in the face of a German

army that had been totally redesigned by a new generation of ambitious young officers, failing in particular to integrate new weapons such as the decoding of Enigma.

19 More than the French, who had already been marked by the succession of disasters since 10 May, the British were shocked by the news of the raid on Paris. In his diary, Alexander Cadogan was irritated by the structural failings of the French Air Force, which was surprised by German bombers while "all the pilots were having their lunch".[30] Noting Winston Churchill's willingness to send British fighters to reinforce the French, the Under-Secretary of State for Foreign Affairs considered the move "useless" in the face of the lack of determination shown: "If I saw the will to fight in the French, I would take that risk. But they are not fighting!"[31] Air Marshal Hugh Dowding, who shared this opinion for reasons that were not political but operational, would soon afterwards decisively influence Churchill to stop the haemorrhage of British fighters into France.

20 If Gustave Bertrand had long since become accustomed to the taste of bitterness in the face of the incompetence of the French general staff, the disillusionment was more brutal among Polish codebreakers. Henryk Zygalski is content with a laconic note in his war diary ("3 June 1940. Heavy bombardment of Paris"), but Marian Rejewski was deeply disappointed by the non-use of the information taken from Enigma:

> In particular, one decoded message has remained stuck in my memory […], highlighting the helplessness of the Allies in the face of German air attacks. The message gave details of the so-called *Unternehmen* Paula, *i.e.*, the plan for the bombing of […] Paris. The message stated how many bombers and how many fighters would take part in this action, which headings would be pursued, at what altitude, on what day and at what time. The date of the operation had to be fixed eight days in advance. Of course, we passed on the content of the message (and the content of every message we read) immediately to our French hosts, but we did not observe any reaction. And yet, we observed -the flight route passed over our castle- that on the day and at the time indicated, planes in compact formation flew overhead towards Paris [32].

21   Lieutenant-Colonel Gwido Langer, head of the Polish codebreakers in exile, paints a similarly bitter picture in his report on "Station Z" operations during the Battle of France: "I do not exclude the possibility that the information was often not used correctly and in a timely manner. A quick examination of the decoded messages [...] highlights [their] exceptional value as a source of information at the time."[33]

22   A little more than two weeks later, the Polish codebreakers went into exile for the second time, evacuating the Paris region to the south of France, where Gustave Bertrand reorganised a clandestine "PC Cadiz" near Uzès. The team resumed its secret work until the third dramatic evacuation in November 1942 in the face of the invasion of the free zone, and took refuge in England, assigned to menial tasks. By this time, the bulk of Allied codebreaking had long since moved to the secret walls of Bletchley Park Manor, largely obliterating the pioneering work of the Poles.

Conclusion: revealing failures for the French and German armies?

23   The *Luftwaffe*'s deadly strike did not have the desired impact on the German command, although it was the only mass *Luftwaffe* action against urban targets and infrastructure during the campaign.[34] The effects achieved were insignificant from three points of view: tactical, operational and strategic. In the evening of Operation Paula, the Air Force was not destroyed at all, still having in theory hundreds of aircraft and most of its aeronautical factories. However, at the beginning of June 1940, the French air force was already largely paralysed by its own inadequacies in terms of logistics, transmission and command, making a large-scale German air offensive largely superfluous. Despite the extremely precise information provided by codebreakers, the Air Staff was unable to make effective use of it, even at the tactical level, and it no longer had sufficient manpower to oppose the *Luftwaffe*.

24   Operation Paula offered little more reason for satisfaction for the German air force. The bombers did not prove much against a very limited defence, with weak results on the ground and psychological effects that were difficult to measure a few days before the French

defeat. In fact, Operation Paula bore the seeds of the future defeat of German bombers engaged in vast strategic missions against economic or civilian targets. Well equipped with fighters and light and medium bombers to respond to its first two missions (air control and support of ground troops), the *Luftwaffe* did not have the means for large-scale long-distance air raids, due to the lack of four-engine heavy bombers. Built *ex nihilo* from the end of the 1920s, the young *Luftwaffe* never had the economic means of its strategic ambitions, unlike the powerful British and American air fleets.

NOTES

1 See E. R. Hooton, *Phoenix Triumphant*, *The Rise and Fall of the Luftwaffe* (London: Arms and Armour, 1994). This book is the reference for the descriptive aspects of Operation Paula.

2 G. Bertrand, *Enigma ou la plus grande Enigme de la Guerre* (Paris: Plon, 1973). This book is one of the first public revelations of the decoding of Enigma during the Second World War. Due to the lack of access to the primary sources mentioned by Bertrand, it was subsequently challenged by some authors (notably F. H. Hinsley *et al.*, *British Intelligence in the Second World War*, vol. 1, Appx 1 (London: HMSO, 1979), before being largely verified by the opening of French and British archives -see below.

3 W. Kozaczuk, *W kręgu Enigmy* (Warsaw: Książka i Wiedza, 1979). Work translated into English in 1984 as *How the German Machine Cipher was Broken, and How it was read by the Allies in World War Two* (Greenwood Press), and into German in 1989 as *Geheimoperation Wicher* (Bernard & Graefe Verlag).

4 The documents mentioned in Bertrand's memoirs can be found in France in his archives, which were partly declassified in 2016 and are kept at the *Service historique de la Défense*: Fond Gustave Bertrand, DE 2016 ZB 25, boxes 1 to 6, and also in England at the Jozef Pilsudski Institute in London (*Kolekcja akt Gwido Langera*, 1927-1976).

5 On the beginnings of Enigma decryption in the 1930s and Franco-Polish relations, see J.-C. Foucrier, "Enigma, the Polish codebreakers and the French secret services, 1932-1945", *Prace Historyczne*, 146/1 (2019).

6   D. Irving, *Marszałek Rzeszy Hermann Göring 1893-1946* (Warsaw: Muza SA, 2001), 322.

7   W. Hubatsch, *Hitlers Weisungen für die Kriegsführung 1939-1945* (Koblenz: Bernard & Graefe, 1989), 53-55.

8   *Die Wehrmachtberichte 1939-1945*, Volume 1. *September 1939 bis Dezember 1941* (Köln: GLB, 1989), 180; J. B. Cynk, *Polskie Siły Powietrzne w wojnie*, vol. 1: 1939-1943 (Gdańsk: A. J. - Presse, 2001), 122.

9   E. R. Hooton, *Phoenix Triumphant, op. cit.*, 263.

10   *Ibid.*

11   It is not known whether the French Air Force command was informed of this first raid by the PC Bruno.

12   E. R. Hooton, *Phoenix Triumphant, loc. cit.*

13   See J.-C. Foucrier, "Les bombardiers lourds de la *Luftwaffe* dans les campagnes aériennes de la Seconde Guerre mondiale", *Penser les Ailes françaises*, 36, école militaire de Paris, 81.

14   E. R. Hooton, *Phoenix Triumphant, op. cit.*, 263.

15   J. B. Cynk, *Polskie Siły Powietrzne w wojnie, op. cit.*, 118.

16   G. Bertrand, *Enigma, op. cit.*, 91.

17   Original message intercepted and deciphered.

18   G. Bertrand, *Enigma, op. cit.*, 92.

19   "Sainte-Marie" potentially refers to several communes in northern France and Belgium, as well as a river in the Oise. G. Bertrand, *Enigma, op. cit.*, 92.

20   *Ibid.*, 95.

21   E. R. Hooton, *Phoenix Triumphant, op. cit.*, 262.

22   J. B. Cynk, *Polskie Siły Powietrzne w wojnie, op. cit.*, 118 and 134.

23   G. Bertrand, *Enigma, op. cit.*, 95.

24   *Ibid.*

25   *Die Wehrmachtberichte, op. cit.*, 182.

26   F. Halder, *Dziennik Wojenny*, volume 1, *Od kampanii polskiej do zakończenia ofensywy na Zachodzie 14.8.1939 – 30.6.1940* (Warsaw: Wyd. MON, 1971), 425.

27   E. R. Hooton, *Phoenix Triumphant, op. cit.*, 264.

28   P. Paillole, *Nasz szpieg u Hitlera* (Warsaw: Bellona-Gryf, 1993), 154-155.

29   A. Beaufre, *Le drame de 1940* (Paris: Perrin, 2020), 124-125.

30   D. Dilks, *The Diaries if Sir Alexander Cadogan O.M. 1938-1945* (London: Cassel, 1971), 294.

31   *Ibid.*

32   M. Rejewski, *Memories of my Work at the Cipher Bureau of the General Staff Second Department 1930-1945* (Poznań: Wyd. Naukowe UAM, 2011), 69-70.

33   Z. J. Kapera, "Raport podpułkownika Karola Gwidona Langera: Sojuszniczy radiowywiad w kampanii francuskiej 1940 r.", *Studia Historyczne*, 33/1 (1990), Krakow, 131.

34   M. S. Alexander, "Radio-intercept, Reconnaissance and Raids: French Operational Intelligence and Communications in 1940", *Intelligence and National security*, 28/3 (2013), 360.

RÉSUMÉS

English

On June 3, 1940, "Operation Paula", the code name of a *Luftwaffe* offensive, opened the second phase of the French campaign. Supposed to annihilate the remnants of the French Air Force and pave the way for armoured units, this operation was aimed in particular at the Paris suburb, with the additional strategic objective of breaking the morale of civilians. "Paula" was not surprise to the French General Staff, informed about the details of the operation thanks to the codebreaking of the Enigma machine by Polish mathematicians in exile. Despite this first-class information, the attack took place without much opposition, raising the question of the integration of cryptanalysis within the French General Staff.

Français

Le 3 juin 1940 se déroule l'opération « Paula », nom de code d'une offensive de la *Luftwaffe* débutant la seconde phase de la campagne de France. Censée anéantir les restes de l'aviation française et ouvrir la voie aux unités blindées, cette opération vise en particulier la région parisienne, avec l'objectif stratégique supplémentaire de briser le moral des civils. « Paula » ne constitue pas une surprise pour l'état-major général français, renseigné sur les détails de l'opération grâce au décryptage de la machine Enigma par les mathématiciens polonais en exil. Malgré ces informations de premier plan,

l'attaque se déroule sans grande opposition, posant la question de l'intégration du décryptage au sein de l'état-major général.

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Mots-clés
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