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The Use of Ultra for the Safe Passage of the Anglo-American Expeditionary Forces to North Africa in 1942

Abstract

In his book *The Ultra Secret* based on his war recollections the former British Intelligence Service Officer, Frederick W. Winterbotham, revealed that the British cryptanalysts had, during the Second World War, broken the German most secret code used for communications between Berlin and German field commanders. 'Ultra,' the information derived from German enciphered messages, was sent out to British field commanders who could, in the light of often detailed information on their enemy's strategy and tactic, mount their offensive or defensive actions. The British Intelligence Services had, however, remained absolutely silent on this question for about three decades after the war.

The aim of this paper is to try to portray Ultra and the role it played in the mounting of the Anglo-American landings in North Africa on November 8, 1942.

Three particular points will retain my attention. First, the historical background through which I will try to shed light on the contribution of the Poles and the French to the breaking of the early signals of the German Enigma machine; second, the British breakthrough; and finally the use of Ultra in the Anglo-American landings in North Africa and why it was kept in the dark for so long.

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ملخص

في كتابه *The Ultra Secret* كشف الضابط البريطاني فردريك ونتربوثم أنه خلال الحرب العالمية الثانية خرَب البريطانيون الشفرة التي كانت تستخدم من طرف القيادة الألمانية في برلين في اتصالاتها مع قياداتها في ميدان الحرب.

By this revelation Group Captain Winterbotham was suggesting, among other things, that most episodes of the war had to be reconsidered in the light of newly available Ultra. This revelation came at a time when the history the Second World War was being finalised. Indeed, the importance of Ultra was dramatically demonstrated in the Pacific at the Battle of Midway, when the American Navy thanks to 'Magic, ' the American code for the information

و" **الأولترا** "، أي المعلومات المستخرجة من الرسائل الألمانية المشفرة كانت تحتوي على معلومات مفصلة عن أحوال القوات الألمانية وعن تكتيك دفاعها الميداني ، وكانت ترسل في حينها إلى القادة البريطانيين لاستغلالها ولاستعمالها ضد الألمان في ساحة القتال.
يسعى هذا المقال إلى إلقاء الضوء على دور **"الأولترا "** في عبور القوات الأنجلو أمريكية ووصولها إلى المغرب في نوفمبر سنة 1942.

derived from the Japanese secret communications, had, in six minutes time decisively, hit back at the Japanese naval force destroying at once three of their most powerful aircraft carriers and a fourth one afew hours later. Thus"Magic" had permitted the US to re-establish the balance of power in a matter of hours and to adopt a more offensive stance.

Enigma and Ultra

Up to now a great number of files containing 'Ultra' are still classified. Only a limited number of people had had access to them. The work of Francis Harry Hinsley, the official historian of British Intelligence in the Second World War remains "the only access that any of us are ever likely to get to the archives of intelligence, and to understanding its influence upon the Allies Warlords and battlefields."[1]

Ultra is essentially a word which indicates highest-security classification. Later it became closely associated with the main output of messages from the British Government Codes and
the Ciphers School, containing information derived from German signals; intelligence from breaking other ciphers and codes was also classified and sent out under the same heading.

Historical Background

As regards the historical background, Enigma was an enciphering machine which looked like a type writer with a series of drums and wheels. The original version of Enigma was invented in Holland in 1919; it was developed by a German and was adopted by the German Government for their navy in 1926, the army in 1929[2] and for their air force in 1934. Enigma was, however, progressively developed and as it became the most important means of communication for the German forces, everything about it was kept secret. A series of modifications were introduced in addition of variable interconnecting plugs between the keyboard and the wheels and the resort to a variety of ways of setting the machine and to more frequent changes of settings to increase its security. On the eve of the war, the Enigma machine had reached a high standard of sophistication. When the war began, the performance of Enigma was pushed still further by additional wheels to make its signals impossible to break. Meantime, the Poles and the French worked on the German Enigma enciphered signals in order to know the German intentions.

The intercepted German signals had to go through a complex process of treatment before they could be converted into any useful Ultra. The different steps of the process were mainly the interception of the signal; its decipherment and translation into plain language; then the intelligence stage being the exploitation of the message into useful intelligence in the light of all available information. This information called 'Ultra' would then be sent out to field, naval or air commanders for use.

Post war contribution claims to the breaking of the German Enigma machine signals were numerous and very much disputed. Many former participants in this field

issued their own version of the story. However the contribution of the poles and the French who were first in this field, is established now despite the fact that Group Captain Winterbotham did not give them due credit.[3]

The Poles' Contribution

As early as 1929, the polish army recruited a group of three young mathematicians fluent in German to join the Army General Staff as cryptanalysts. Besides their mathematical skill, the three Polish students Rejewski, Jerzy Rozycki and Henryk Zygalski "showed creative imagination, perseverance and intuition."[4] The Polish cryptanalyst team had been working for some time, when in 1931, the French Intelligence Service, through Gustave Bertrand handed over them a number of documents relating to the German Enigma machine which the French had obtained from a German, Hans Thilo Schmidt who worked for the code service of the German Army. G. Bertrand claimed to have received 303 documents from his German agent covering a wide rang of German intercepting and deciphering activities.[5] The French contribution to the breaking of Enigma lay in the quality of the documents they passed to the Poles since it was the latter who first cracked the German Enigma signals. By working back over old signals with precise keys in their hands, the Poles could discover a great deal about the theoretical and mechanical principles of Enigma cipher.

The Poles took only four and a half months to make their breakthrough in the system of Enigma. From 1933 they started reading the German Enigma signals. The following year, aided by a Pole who worked in a German Enigma factory, they began producing their own Enigma machines identical to those produced in Germany; in 1937, they successfully developed the 'cryptographic Bomb,'[6] made up of six Enigma machines "devised for finding Enigma keys by rapid automatic testing of several tens of thousands of possible combinations…[as] anyone not knowing the setting was faced with the problem of choosing from one hundred and fifty million, million, million silutions."[7] However, in 1938, the Germans introduced a fourth wheel and a fifth wheel to Enigma to ensure more security for their signals. On the 15th of September, 1938, when the war was around the corner, the Poles ceased reading the German Enigma signals. Meantime, Austria was invaded. Poles, French and British worked separately but as the political and military situation started deteriorating very rapidly, the Poles called for a meeting (24-25July, 1939) at which they revealed to the French and British what they knew about Enigma and handed to each of them a replica of the German Enigma machine. A few weeks later Poland was invaded but the poles had successfully handed the torch to the French and British. Cooperation was immediately started however, the breaking of German signals were made by the French "with considerable delay; a key for 26 October, for example, was broken on 17 January, 1940."[8] But with the defeat of France Bertrand's organisation fled to southern France.

The British Breakthrough

Though they were left alone, the British cryptanalysts who were installed at the British Government Codes and Ciphers School at Bletchley Park, some 50 miles northwest of London, succeeded quickly in improving the technique of breaking the German signals. Indeed in 1940, they produced their own 'Bombe,' a kind of computer working at a speed of 25,000 operations per second. This achievement came at a time when the invasion of the British Isles was no longer a vague hypothesis. Rather, it

looked imminent as the British were the only Europeans still standing in Hitler's way; their defeat, if achieved, would open the door wide open for the German undisputed domination of Western Europe.

From then on, and until the end of the war, the British cryptanalysts read the German Enigma signals regularly and at times, were even able to relay 'Ultra' to their field commanders on signals destined to German field commanders form the German High Command, before the German addressee could get them.

In 1942, when the Anglo-Americans invasion of North Africa was being mounted, the vital and tactical role of 'Ultra' for the conduct of the war had already been established. It had particularly been demonstrated in the Battle of Britain and the Western Desert.

Ultra's Role in the Passage of the Anglo-American Expeditionary Forces to North Africa

For the preparation of the invasion of North Africa by the Anglo-Americans, the British Government Codes and Ciphers School was brought to brief some of the American Commanders with the respective key members of their staffs on 'Ultra' and its operational use. Prime Minister Winston Churchill had already revealed to President Delano Roosevelt the existence of his 'most secret source' of information. President Roosevelt must have realised the significance of the British achievement since the Americans cryptographers had as well cracked the Japanese naval signals in one of Enigma's variations.

The meeting with the Americans for their briefing did not go as smoothly as expected. Group Captain Winterbotham who was designated to do the job, reports that his attempt to brief the US commanders was a failure – reference is to Gen. Mark Clark, Deputy Commander–in-Chief of Operation Torch – who was restless despite the British officer's effort to catch his attention and interest by giving some pertinent examples of what 'Ultra' was and how it could help. But General Clark didn't appear to believe what was reported about 'Ultra' and after sometime left the room on the ground that he and his party had something else to do.

Whatever the value of the post-war reasons General Clark gave to justify his attitude, he appears to have been rather suspicious with regard to the existence of 'Ultra.' The Absence of any significant British breakthrough against the Axis Powers appeared to lend weight to this view. Furthermore, it was rather difficult to believe that anything as comprehensive had existed for so long without being compromised.[9]

It was however essential from the British point of view that the Allied Operational Commanders were put in the picture for the security of 'Ultra which was derived from the wireless-traffic going on between Berlin, the Axis Air Commander, Kesselring, in Rome and Field Marshal Erwin Rommel in the Western Desert, Libya . 'Ultra' was giving details on Rommel's forces, his supplies and tactics. It was also providing a complete picture of the Axis Air force in the Mediterranean during the passage of the Anglo-American forces from the US and the UK to Morocco and Algeria and then to Tunisia. 'Ultra' and intelligence from other sources, like air reconnaissance, concerning the German naval disposition in the Atlantic, the Axis reactions when the convoys entered the Mediterranean and lastly the Axis's counter-measures to forestall the Allied landings and advance eastward were also carefully monitored.

With regard to the British naval preparations, the German command was quite aware thanks to the Luftwaffe daily air reconnaissance flights over Britain's coast ports. In this respect, 'Ultra' disclosed that the Germans had, on 22 October, detected an increase from 8 to 43 ships in Greenock, in the previous week.[9] As early as the end of September a German agent, 'with good connections in the Vatican,' had reported that there would be major landings between mi-October and mi-November by the Americans in West Africa (Dakar) and by the British in North Africa. This message, passing between the German Army Headquarters in Rome and Panzer Army Africa, was also revealed by 'Ultra.' In addition Bletchley Park was reading a great deal of German wireless traffic and knew that the Germans were in a state of hesitation as to real intentions of the British forces that were being gathered. British planners had developed deceptions measures meant "to threaten landings in Norway and the north of France respectively."[11] The British Planners expected that this threat would tie down substantial German forces in Western Europe and contain them for as long as possible thus preventing them from reinforcing the Mediterranean theatre of war. Later when the Anglo-American expeditionary naval forces would enter the Mediterranean, their deceptive cover would be that their final destination is Malta and the Eastern Mediterranean. However, when the convoys set off for their objectives in Morocco and Algeria across U-boats infested waters British cryptanalysts stood helpless in front of the change operated in the German naval Enigma machine in February 1942. The Anglo-Americans therefore relied completely on the old techniques of the Admiralty 'Tracking Room' and provided their convoys with strong naval and air escorts in conjunction with deceptive measures.

On the whole there was a substantial increase of U-boats in the vicinity of the convoys' routes and the approach to Gibraltar. Naval Staff's estimates pointed out that "if the enemy got wind of our intentions, 50 U-boats could be deployed against the expedition by the end of October, and another 25 by the 6 November."[12]

During their passage the Anglo-American convoys were sighted 5 times and were reported to Berlin. But at the time the convoys approached the eastern Atlantic coasts the U-boats concentration had engaged in an attack against a Freetown UK convoy on 27 October off Madeira. This attack lasted till 31 October 1942 and had taken the U-boats far to the north by the time the 'Torch' Task Force was sighted during the approach to Gibraltar. There were rumours that the Axis powers were making air attack preparations; that they had requested, from France, free passage through Tunisia and Algeria to Morocco for four divisions that were already stationed at the Tunisian boarder; and that they were making preparations to occupy the French airfields on the Franco-Spanish boarder. 'Ultra' proved that there were no such preparations. The photographic reconnaissance division, for its part, showed that there were no German preparations to take over French airfields as rumours indicated. Apparently, all these rumours originated in the approach made by Admiral François Darlan, Commander- -in-Chief of the French Fleet, to the US authorities in Algiers to warn them that Germany had got wind of the Allied preparations to assault Dakar and / or Casablanca.[13] While the convoys were coming to their mark, at Bletchley Park the British cryptanalysts were closely watching the Axis air movements, to assess its strength and dispositions in different theatre of war. The intercepted signals, Ultra, showed that even when the Axis powers realised the imminence of the Allied landings,

they remained uncertain as to their actual targets. Indeed taking into account the alternatives open to the Allies in the Mediterranean: Algeria, Tunisia, the south of France, Sicily, Malta, Tripolitania and the eastern Mediterranean, the Axis was slow to react in the early days following the convoys' arrival at Gibraltar. From 'Ultra' the Anglo-Americans knew that on 30 October the Germans were inquiring whether the tankers lying outside Gibraltar had any intention of entering the port.[14] The same day Bletchley Park intercepted a message from Lisbon to Berlin indicating that "the British naval concentration and the 70,000 men in Gibraltar are in readiness for an attack on North Africa." At the same time the German agent was predicting "an attack …on Casablanca and Dakar."[15] The German War Dairy reveals that a report from Paris on 4 November, 1942 pointed that "an American landing is to be expected in Casablanca within 14 days."[16]

Most of "Ultra" in these days came from the reading of the German Air Force Enigma signals. Between the 25th October and the 7th December 1942, the most crucial period for the landings "Ultra " provided a panoramic view of the Axis air movements and foretold their most likely tactical move. There was a quick and substantial Axis air force build-up in Tunisia and its vicinity: Sardinia, Sicily, Southern Italy and Libya.The Anglo-American passage into the Mediterranean and the landings planned to take place in Morocco and Algeria proceeded well. In none of the German signals did Bletchley Park detect any significant sign of German preparation for a move to close the Strait of Gibraltar. Indeed negative "Ultra," in this respect was most welcome in the Anglo-American headquarters as it gave the Commanders of the expeditionary forces more confidence regarding the safety of the expedition and its supply line.

Conclusion

In the last few days before the landings took place, "Ultra" was a major factor of relief and confidence for the Allied Command. Indeed, as the Oran and Algiers bound convoys entered the zone which was considered to be virtually under the Axis air and naval control, "Ultra" continued to disclose that the Axis Powers knew nothing of the Allies' intentions. On November 8, 1942 the Three Task Forces initiated their landings in the Casablanca, Oran, and Algiers areas without any serious interference from the Axis' forces which were caught completely off guard.In the North African landings, "Ultra" sat the test and passed it at least in the sense that its strategic and tactical value was proved on the battle field. In this operation, it induced confidence in all commanders and senior staff officers of the integrated headquarters. At the Command level, "Ultra" had established itself as the most secret and the most valuable information. It represented a good asset for the Allied conduct of the war. In the North African landings "Ultra" provided the Allied Command with confidence as it showed no significant Axis' move to either close the Strait of Gibraltar or mount an air attack on the expeditionary forces to repulse them.

Many hypotheses have been put forward to explain why "Ultra" was kept dark for so long. Group Captain Winterbotham refers to Churchill's directive not to divulge the existence of "Ultra" in order: (1) to preserve the Secret Service activities; and (2) not to render "Ultra" the chief responsible for the defeat of the Axis. Ostensibly, the Prime Minister wanted history to establish that the defeat of the German and Italian armies came at the hands of the Allies' superior armies and strategy.

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2- According to D. Khan, "Le rôle du décryptage et du renseignement chez les Alliés" *revue d'histoire de la deuxième guerre mondiale* No. 111, Presses Universitaire de France Juillet 1980, p. 75. The German Army adopted Enigma on July 5th 1928, not in 1929 as F.H. Hinsley put it.

3- Professor F. Hinsley, himself a former British Intelligence Officer, provides a good account on what has been written by the Poles, French and the British on their contribution to the breaking of the German Enigma machine in Vol. 1, app. I of his *British Intelligence in the Second World War*.

4- Stefan Korbinski, "The True Story of Enigma," *East European Quarterly*, Vol. XI, No.2, Summer, 1977.

5-Gustave Bertrand, *Enigma ou la plus grande énigme de la guerre 1939-45*, Plon 1973 p. 29

6- 'Bomba' as the Poles considered 'Bomba' as the forerunner of the computer, others saw it as a mere electromechanical device.

7- Hinsley, op. cit.pp. 489-90.

8- Peter Calvocoressi, *Top Secret Ultra* Cassel, London, 1980, p. 37.

9- Pain, Lauran *British Intelligence Service*, R. Hale, London, 1979, p. 142.

10- Hinsley op. cit. Vol. 11, p. 476
It should be, however, noted that CAB 86/90399, para. C. p. 6, states that Germany "made no attempt at special aerial reconnaissance of the Clyde and Mersey when shipping was concentrating." This was considered as one of the most remarkable features of the naval expedition.

11- John C. Masterman, *Double Cross System in the War of 1939-1945*, Yale University

Press, New Haven and London, 1972, p.109.

12- S.W. Roskill, *The War at Sea*, Vol. II, H.M.S.O. London, 1956, p. 317.

13- Hinsley, op. cit. Vol. II, p. 479. (CAB 121/479 folio229A)

14- ADM 223/105 Ultra Signals, 1020/28 October , 2217/5.

15- ADM 223/105 Ultra Signals, No. F 1519 3 November 1942.

16- Ministry of Defence, Battle Summery Invasion of North Africa, No. 38, 1948.

17- http:www.cl.cam.ac.uk/reseatch/security/Historical/hinsley.html: The reader can consult the talk given on 19th October 1993 at Babbage Lecture Theatre, Computer Laboratory by Sir Harry Hinsley, a distinguished historian who during the Second World War worked at Bletchley Park where much of the British code-breaking was taking place. In this talk, Sir H. Hinsley - with whom I had had the privilege of corresponding on Ultra when I was doing my Ph.D at the University of Reading - speaks of the influence of Ultra in the Second World War.