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The influence of ULTRA in the Second World War

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The influence of Ultra - the codename used in the Second World War for the product of the decryption of the more important enemy cyphers - is a subject that calls for two different kinds of enquiry. The records began to be available during the 1970's, so that we now have the essential evidence for the direct or the immediate influence it exerted; and so long as we have proper regard for the rules of historical enquiry, we can establish what that influence was with reasonable accuracy. We know what information Ultra provided and when it reached its recipients. We know the nature and the extent of such other intelligence as was then at their disposal. And although there are few contemporary accounts of what they thought of it and did with it, we know what appreciations, orders and actions, and sometimes what discussions, followed its receipt. But because the very existence of Ultra remained a closely-guarded secret until the 1970s, its influence was unknown to, or unmentionable by, the compilers of contemporary reports and the authors of the standard histories and the memoirs that were published before that time. These reports and these accounts already incorporate the contribution Ultra made to the course of events but they do not acknowledge it. The purpose of the historical enquiry is thus to identity that contribution and, to this extent, to put the Ultra into the existing accounts.

But this cannot be the sole aim of the investigation. Over and above the direct or immediate influence of Ultra on events, we have to consider the effects or the consequences of its contribution for the course of the war. Let me give an illustration of this distinction. To identify the Ultra is sufficient to establish that it alone made it possible in the last four months of 1941 to control the depredations of the U-boats and drive them temporarily out of the north Atlantic. But strict historical enquiry cannot establish the impact on the course of the war of the defeat of the U-boats at that time. As will be obvious from this example, this impact is, like Ultra's immediate contribution, already incorporated into, subsumed in, the record of the

way the war developed. But if we are to assess its significance we have to identify the Ultra in order to be able to strip it out of existing accounts of the course of the war - in order to calculate how the war would have gone if Ultra had not existed. In the jargon of my trade, we have to engage in counter-factual history.

Counter-factual history is a difficult exercise, not to say a dubious one - as may be judged from such studies as those which have sought to reconstruct the history of the United States on the assumption that the railway had not been invented. It is certainly true that we should carry it out only if we are fully aware of what we are doing. But it is equally true that unless we attempt it we shall not grasp the significance of Ultra's contribution.

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This contribution did not begin till the spring of 1941: eighteen months after the outbreak of the war. Although decrypts from the German Enigma were obtained regularly from the spring of 1940, they were confined for the next 12 months to an Enigma key used only in Norwegian campaign and to two keys used by the German Air Force. Although the volume of decrypts was heavy during the Norwegian campaign and in the last phase of the battle in France, they could not be turned to practical use for lack of communications security procedures and expertise. Various claims have been made to the effect that Ultra was of same value during the Battle of Britain, against the threat of German invasion or in the Blitz; there is no substance to them, though intelligence from other sources - prisoners; captured documents and equipment; agents; air photographic reconnaissance; the enemy's tactical radio communications - was improving.

The first Ultra which might have been turned to some advantage was that which from January 1941 first confirmed and then superseded attaché and agent reports about the scale and timing of the German build-up.for the attack on Greece. It might have shown that the attack could not be stopped by any British force, however large, that could be spared from the Middle East; but for various reasons it was decided to take no account of this. The first developments to which Ultra made a contribution were the defeat of the Italian army in north Africa in February (which owed more, however, to intelligence from tactical codes than to Ultra) and the battle of Matapan at the end of March (a victory for the Mediterranean fleet that was made possible by the timely receipt of a few German and Italian high-grade decrypts).

These initial contributions were soon followed by others. Ultra in the form of German Air Force reports of the advance of the German army positively assisted the British force in Greece to retreat in good order in April. In May the decryption in good time of full details of the German plan of attack did not enable the defenders to save Crete but it enabled them to turn Germany's victory into a Pyrrhic victory. But Ultra did nothing to avert the surprise or the success of Rommel's first offensive, which took him to the Egyptian frontier by the middle of April, and it did nothing to avert the failure of Warell's two attempts to drive him back - operations Brevity in mid-May and Battleaxe in mid- June. The Enigma decrypts were still confined to those of the air force and all the Italian service cyphers had by then become unreadable.

In the second half of 1941, on the other hand, Ultra exerted a powerful, if not always a decisive, effect on the fluctuating fortunes of the desert campaign as a result of a significant expansion of its sources. At the end of June Bletchley broke a machine cypher which the Italians had introduced at the end of 1940 for communications about Axis Mediterranean

shipping. It read it regularly and currently thereafter, decrypts rising from 600 in July 1941 to 4,000 in July 1942, the peak month. From the middle of September, though only temporarily, until the end of November, Bletchley solved the German army Enigma keys in use within the Panzer Army and between North Africa and Rome and Berlin. It was sinkings of Rommel's supply ships that resulted directly from the Italian decrypts that prevented Rommel from continuing his advance before Auchinleck opened his own offensive (operation Crusader) in November; and those sinkings, rising before and during the offensive from 20 to 50 per cent of all ships sailed, combined with the receipt for the first time of Ultra about the state and the movements of Rommel's formations to enable Eighth Army turn the tide during the Crusader battles and force him back to Al Agheila by the end of 1941.

By the end of 1941 the tide was turning the other way. The shipping losses had forced the Germans to strengthen their air power in the Mediterranean and despatch U-boats there, and these measures, by neutralising Malta, cancelled out the value of the shipping decrypts. To make matters worse, the Army Enigma was lost from early in December, while Rommel's field intelligence, which continued to outclass that of the British forces, was boosted by an Axis success with Ultra: from January to June 1942 the Germans read the cypher used by the US Military Attaché in Cairo. It was in these circumstances that Rommel, surprising the British by resuming the offensive on 21 January 1942, forced them back to the Gazala line by 6 February and then achieved a resounding victory in the battle of Gazala at the end of May. One of the Army Enigma keys that had been read during operation Crusader was recovered in the middle of April. Together with the Air Force Ultra, its decrypts gave a month's notice that Rommel intended to attack again towards the end of May. But Ultra revealed nothing about his operational plans or the redispositions which might have betrayed them. Until mid-way through the battle, moreover, the Army Enigma was being decrypted with delays of at least a week.

At that point, however, the situation changed again, and this time permanently. Bletchley began to read both of the Army keys with an average delay of 24 hours from the first week of June. From the same date it broke a new Army-Air Force liaison key, also with little delay; and from 11 July, in one of the rare exceptions to the war-time rules for Ultra intelligence, the authorities allowed this most voluble and valuable of Enigma keys to be decrypted in Cairo so as to minimise delay in getting Ultra to the commands. In the middle of July another Enigma key was broken, that used by the Germans in connection with the air transport of army supplies and reinforcements to north Africa from Greece and Crete. With these additions to the Air Force Enigma the British had acquired access, though with different degrees of speed and completeness, to every enemy cypher in use in the African fighting. Both directly in the shape of the decrypts and indirectly by the effect the Ultra had in raising the efficiency of British field intelligence, the Middle East commands thereafter received more timely intelligence about more aspects of the enemy's activities than any force enjoyed in any land campaign in the whole war. They took some time to become adept at handling it - too long to avoid the loss of Tobruk and retreat to the Alamein line. But an analysis of the use to which they put it during the retreat in June and in the first round of fighting at Alamein in July fully bears out the view which Auchinlek expressed at the time - that but for Ultra `Rommel would certainly have got through to Cairo'. It is certainly the case that Ultra showed that the Axis authorities expected him to do so: at the beginning of July the decrypts showed that the Panzer Army had requested maps of the chief Egyptian cities, that the Italian navy was preparing to escort troop convoys to Egypt and that Hitler had ordered exceptional steps to ensure that Rommel received additional troops.

Although Ultra was never again to be so crucial for the outcome in north Africa, it continued to be an enormous asset. From 17 August it disclosed the approximate date and the exact operational plans for Rommel's next offensive at the end of August. Despite fore- knowledge of his plans, the British did not defeat him in the field at Alam Halfa; but he was forced to abandon the battle after 2 days on 2 September because a renewed offensive against his supply shipping, made possible by the replenishment of Malta and again guided by Ultra, had destroyed 33 per cent of the cargo despatched - and 41 per cent of the fuel - in the second half of August. The intensification of the anti-shipping offensive, which sank no less than 45 per cent of the cargo sailed in October, had gravely reduced Rommel's freedom of movement by the time the British launched their own offensive from Alamein on 23 October, and Ultra further contributed to his defeat by establishing the precise effect of the shipping losses on his logistic and manpower situation and his defence preparations. But the influence of Ultra on the battle of Alamein was less than that of the decisive superiority - it was about 5 to 1 - which the British had acquired in tanks and in the air; and the wonder is that, when Eighth Army was receiving a continuous stream of Ultra, it failed to cut off Rommel's retreat before he reached Tunisia.

During the campaign in Tunisia Ultra was much less complete. The new Enigma key for communications between the German army and Rome was soon broken, but was read with considerable delay. The key introduced for use within the army in Tunisia was not read till February 1943, and then irregularly. In March the old keys in use by Rommel's formations gave good notice of the enemy's plans before the battle of Medenine and full details of his strength and dispositions during the battle of Mareth. But their evidence was not decisive; other sources - field intelligence and air reconnaissance - were providing adequate information. And on the other fronts in Tunisia, where other sources were also performing poorly, Ultra exerted little influence on the fighting. On a quite different front, on the other hand, it was making a decisive contribution to victory in the battle of the Atlantic while the Tunisian campaign was being fought.

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The first victory over the U-boats had already been achieved - and achieved entirely on the basis of Ultra - in the second half of 1941. The influence of Ultra in reducing Axis shipping in the Mediterranean had forced Germany to transfer 21 U-boats there, a third of her operational fleet, from the Atlantic during those months. Still more important was the fact that Bletchley had at last broken the naval Enigma at the beginning of June 1941 and was decrypting it nearly currently until the end of January 1942. At a time when the British anti-submarine defences were woefully weak and merchant shipping woefully scarce, and when the U-boat fleet was at last becoming a formidable force, the use of the decrypts to route convoys away from the U-boat patrols had a dramatic effect on the scale of the U-boats' depredations. In the 4 months to the end of June they had sunk 282,000 tons of shipping a month. Between the beginning of July and the end of the year the sinking averaged 120,000 tons a month, and they had dropped to 62,000 tons in November, when the U-bombs were temporarily withdrawn from the north Atlantic. It has been calculated that, allowing for the increased number of U-boats at sea, about 1 1/2 million tons of shipping (350 ships) were saved, and this intermission was invaluable for the level of British supplies, the building of new shipping and the development of anti-submarine defences. Even so, it was less crucial than the second and final defeat of the U-boats which Ultra helped to bring about in the spring and early summer of 1943.

When the U-boats returned to the north Atlantic in the autumn of 1942, after months in which they had been concentrated off the American coast, they were using a new Enigma key that was unreadable. The result was reflected in a huge increase in Allied shipping losses on the convoy routes. Bletchley broke the new key in December, and the use of the decrypts for the evasive routeing of convoys secured a marked slump in sinkings until the end of February 1943 despite a continual increase in the number of U-boats on patrol. But in March 1943 Allied losses were again close to a level which, if sustained, would have disrupted the UK supply line; evasive routeing had been made impossible by the sheer size of the U-boat fleet. From the end of March, on the other hand, strengthened Allied escort forces went over to the offensive against the U-boats in the vicinity of the convoys, and did so to such effect that while the number of ships sunk in convoy was immediately reduced by two thirds, the U-boats suffered such heavy losses that they were withdrawn from the north Atlantic in May. Nor were they ever to return in strength. During June, July and August 1943 the Allied offensive, extended to attacks on their refuelling points and their passage routes through the Bay of Biscay, finally crippled the U-boat command. In the last four months of the year Allied shipping losses were running at less than one sixth of the insupportable level they had reached in March, and in 1944 they continued to fall.

Whereas Ultra had been solely responsible for the success of evasive routeing, it was only one of the factors underlying the success of the allied offensive. This would have been impossible without the closing of the air gap in the north Atlantic, the introduction of improved radar and of high-frequency direction finding for the escort vessels and the deployment of aircraft-carrier support groups to hunt the U-boats. But the influence of Ultra on the offensive was enormous. By maximising the effect of these technical and operational developments which came to fruition in 1943, it ensured that the Allied victory was complete and decisive.

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Since the middle of 1943 Ultra had meanwhile come into its own as an invaluable accessory in the planning of other Allied strategic initiatives. It had played no part in the preparations for the invasion of north-west Africa, which were marked both by excessive over-compensation in the size of the forces detailed for Morocco, and by lamentable underestimation of the scale on which Germany might despatch forces to Tunisia. Such errors were thereafter avoided because first the growth of the Allied threat and then the extension of the theatre of operations produced a huge increase in the volume of Ultra. Combined with the accumulation of Ultra about the German air force since the spring of 1940, about the German navy since the summer of 1941 and about the German army since the autumn of 1941, this gave the Allies the advantage that when carrying out the landings in Sicily and Italy in July and September 1943 and the Anzio landing in January 1944 they possessed an accurate knowledge of the enemy's problems throughout the Mediterranean, of the condition and order of battle of his formations there, and often of his intentions. Especially in relation to his intentions intelligence increased because Bletchley now solved some of the cyphers recently introduced by Germany for high-speed non-morse transmission. The first important one to be read regularly, from the end of May 1943, was that used by Berlin and Kesselring as C-in-C South in Italy. These cyphers added a new dimension to Ultra, for whereas the bulk of the Enigma was transmitted at and below Army level, the non- morse cyphers were used between Germany's Armies and Army Groups and Berlin, and so carried statements of intentions, orders, appreciations and situation reports of the highest strategic value.

As distinct from the assistance it gave to the planning of the Allied campaigns Ultra was rarely of decisive operational importance during the fighting in Sicily and Italy. A notable exception to this statement must be made for the fact that by revealing in advance the time, the direction and the scale of Kesselring's counter-attack, it saved the Anzio beach-head in February 1944 and thus averted an Allied set-back of strategic proportions. But in Italy it provided full coverage of the strength and order of battle of the German divisions, as well as full knowledge of Germany's determination to yield as little ground as possible, and this conferred on the Allies a further strategic advantage; it enabled them not only to pin down a million battle- experienced German troops with a minimum effort but also to reduce that effort without sacrificing that objective as they prepared for the landings in France.

In the preparations for the cross-Channel invasion the contribution made by Ultra was still greater, in proportion to the fact that, of all the Allied landings, Overlord, the first to be opposed by armoured divisions, was the most hazardous and the least certain to succeed. It is true that, of the 3 pre-requisites for success, 2 were already in place - command of the sea and command of the air. The third was an assurance that Germany would be unable to concentrate first- class, especially armoured, divisions and then reinforce them in sufficient strength to prevent the seizure and the expansion of the beach-heads. The limits to this strength that were acceptable in the light of the proposed scale of Allied assault and follow-up were laid down in the middle of 1943, early in the planning stage. Until the end of 1943 there was no Ultra to show whether the Germans were likely to exceed these limits because their air and ground forces in the west were still using land-lines. All the evidence which suggested that they would do so, as also that they were intensifying their fixed defences, and which forced the Allied in January 1944 to double the length of the invasion front and increase the size of the assault force and the rate of reinforcement, came from other sources - the resistance movements, agents, captured documents and photographic reconnaissance. But from early in 1944, partly from decrypts of Japanese reports from Berlin to Tokyo but mainly because Bletchley solved some of the new German Air Force and Army cyphers that were at last appearing on the air - and notably the non-morse cypher introduced between Berlin and von Rundstedt, the C-in-C West, which was broken in March - Ultra confirmed and greatly added to the other intelligence about the identification and location of the German divisions.

As the Ultra accumulated, it administered some unpleasant shocks. In particular, it revealed in the second half of May, following earlier disturbing indications that the Germans were concluding that the area between Le Havre and Cherbourg was a likely, and perhaps even the main, invasion area, that they were sending reinforcements to Normandy and the Cherbourg peninsula. But this evidence arrived in time to enable the Allies to modify the plans for the landings on and behind the Utah beach; and it is a singular fact that before the expedition sailed the Allied estimate of the number, identification and location of the enemy's divisions in the west, 58 in all, was accurate in all but two items that were to be of operational importance.

As luck would have it, one of the gaps in the intelligence related to 21st Panzer Division. Ultra revealed that it had moved to the Caen area in the middle of May; but neither Ultra nor any other source provided its exact location, and this proved to be the decisive factor in the Allied failure to capture Caen on the first or second day. The other gap was the unexpected presence of a good quality, partly mobile field division, 352nd Infantry, on the coast, where it delayed the break-out from Omaha and Gold beaches. But the consequences of these two deficiencies may give some idea of the significance for the success of the landings of the fact that the Allies otherwise knew from Ultra - and thus knew for certain - the whereabouts of the

German armoured and mobile formations and could thus calculate the rate at which the enemy could build up counterattacks and the directions from which they must come.

The order of battle evidence, however crucial, forms only a part of the contribution made by Ultra to the success of Overlord. The decrypts were eloquent on other matters which only Ultra could reveal - the fact that despite their growing anxiety about Normandy and their inclination to believe that the operation would come in June, the Germans remained radically uncertain as to its place and time; the exact areas of their minelaying, especially in the Seine Bay; their plans for deploying the U-boats; their army chain of command; the state and strength of their air force; the condition of some of their offensive divisions; their fuel and manpower shortages. This advance knowledge was all the more valuable, moreover, because, although the naval and air Enigma showed that the landings had achieved tactical surprise, there was no Ultra about the German army during the first critical 48 hours of the assault. Von Rundstedt's non-morse link had temporarily ceased to be readable and the new Army Enigma keys were not read regularly till 17 June, by which date the bridgehead, as we can now see, had been secured. Between 8 and 17 June, however, decrypts of the Air Force keys used by the army-air liaison officers and the parachute formations enabled the Allies to avert two serious threats. On the morning of 10 June they located the HQ of the enemy's armoured striking force (Panzer Gruppe West), and its destruction later that day by air attack finally extinguished the German hopes for a concentrated counter- attack that would split the bridgehead in two. On 12 June they gave the advance warning which enabled lst US Army to repulse the counter-attack south-west of Carentan by which the Germans had hoped to prevent the Americans from cutting off the Contentin peninsula.

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The volume of Ultra grew enormously from 18 June and particularly from the beginning of August, after the Allied break-out from Normandy. The destruction of German land-lines on all fronts kept it at a high level till the end of the war. But it was never again to be so valuable either for its frequent vital contributions to operational intelligence or for its more pervasive influence on planning and strategic decisions. In the last 9 months of the war, indeed, the Allies suffered operational set-backs like Arnhem and strategic reverses like Germany's Ardennes offensive which they might have avoided if Ultra had been more carefully considered; and strategic oppoertunities were missed which, like a more forceful prosecution of the bombing offensive against Germany's oil resources, might have shortened the war if the significance of the intelligence had not been disputed. But consideration of what Ultra might have accomplished in the last months of the war is irrelevant to an assessment of the consequences of the influence it had previously exerted.

In attempting that assessment we may at once dismiss the claim that Ultra by itself won the war. The British survived with little benefit from it before Germany invaded the Soviet Union in June 1941, as the Soviets survived the first German offensives without any benefit from it, so far as we know; and since those offensives were followed by the entry of the United States into the war in December 1941 we may safely conclude that the Allies would have won even if Ultra had not given them by that time the superiority in intelligence which they retained till the end of the war. But the end was then 3 1/2 years away - such a length of time that we might be persuaded to jump to the opposite extreme and conclude that, far from producing on its own the Axis defeat, Ultra made only a marginal contribution to it. This second conclusion, however, can be equally firmly dismissed. To the question, why did Ultra not shorten the war, the answer is that it did.

By how much did it do so? In addressing that question we have to suppose that Ultra had not existed, and we cannot escape the risk of hypothesis and speculation which is inseparable from counter-factual history. But we can limit the risk if we depart as little as possible from the historical reconstruction of Ultra's actual impact. Even if it did not keep Rommel out of Egypt at the end of 1941 by its decisive contribution to the outcome of the Crusader offensive, as it probably did, it certainly did so in the summer of 1942, when it alone prevented Rommel from exploiting his victory at Gazala. And even if the Allies had still gone forward with the landings in French north Africa that autumn, the loss of Egypt, which would also have eliminated Malta, would surely have set back the conquest of north Africa and the reopening of the Mediterranean by at least a year - from May 1943 to at least the summer of 1944 - and necessitated the deferment of Overlord.

The Allies might alternatively have cancelled those landings, turning their backs on the Mediterranean, and sought the earliest possible invasion across the Channel which always in any case had priority in American thinking. But what would have been the prospects for that undertaking if Ultra had not existed? If Ultra alone had not prevented the U-boats from dominating the Atlantic in the last six months of 1941? If, after performing the same service again in the winter of 1942-43, it had not contributed heavily first to the defeat of the U-boats in the Atlantic in April and May 1943 and then to the Allied success in so crippling the U-boat command during the second half of 1943 that it could never return to the convoy routes? In the rate of ship-building and the destruction of U-boats the Allies would no doubt have prevailed in the end. But they would not have prevailed in time to launch Overlord in 1944, and it is not unreasonable to believe that, even if it had been given priority over the clearance of the Mediterranean, Overlord would have had to be deferred till 1946.

It may be argued that, if only by stripping resources from the Pacific, this delay could have been shortened. But if the U-boats had delayed the invasion only by months, till the spring of 1945, other considerations would have come into play. As it was, the invasion of Normandy was carried out on such tight margins in 1944 that it would have been impracticable - or would have failed - without the precise and reliable intelligence provided by Ultra about German strengths and order of battle. Carried out in 1945, it would have failed more decisively - or, more likely, these other considerations would have necessitated further delay. Germany's V-weapon offensive against the United Kingdom would have been in full swing. She would have finished the Atlantic Wall. From early in 1945, as Ultra revealed, she would have brought into service revolutionary new U-boats and jet and rocket aircraft. And unless the Allied had incurred delays by undertaking diversionary operations, she would not have had to disperse large forces to hold a Mediterranean or a Norwegian front.

If not in these last directions then at least in others the Western Allies would not have been idle in these circumstances. Who can say what different strategies they would have pursued? Would the Soviets have meanwhile defeated Germany, or Germany the Soviets, or would there have been stalemate on the eastern fronts? What would have been decided about the atom bomb? Not even counter-factual historians can answer such questions. They are questions which do not arise because the war went as it did. But those historians who are concerned only with the war as it was must ask why it went as it did. And they need venture only a reasonable distance beyond the facts to recognise the extent to which the explanation lies in the influence of Ultra.