From Axis Surprises to Allied Victories:  
The Impact of Intelligence in World War II

Peter C. Oleson

As governments declassify old files and scholars examine the details of World War II it is apparent that intelligence had an important impact on many battles and the length and cost of this catastrophic conflict.¹ More so than any time in history intelligence played a central role in World War II. Historians F. H. Hinsley and David Kahn have suggested that the Allies' success at breaking the German codes shortened the war in Europe by years and helped turn the tide in the Pacific.² The Allies did not enter World War II with good intelligence; rather initial Allied losses and failures were often the result of poor or unconvincing intelligence or no intelligence at all. A war that started with Axis military successes in its early phases (1939 – 1942), based partially on their intelligence preparations, was brought to a conclusion aided by the intelligence successes of the Allies (1942 – 1945).

THE BLEAK YEARS: 1939 – MID 1942

Poland, Britain, France and others, often blinded by preconceptions and biases, were surprised repeatedly by the Axis powers in both a strategic and tactical sense. When war broke out on September 1, 1939, the Polish leadership, ignoring their own intelligence, lacked an appreciation of German military capabilities: their cavalry horses were no match for German panzers. British Prime Minister Neville Chamberlain misread Hitler's intentions, unwilling to accept the evidence at hand. This was the consequence of the low priority given to British intelligence in the period between wars.³

Near the end of the "Phony War" in the West, the Germans engineered strategic, tactical, and technological surprises. The first came in Scandinavia in early April 1940.

Norway

The German invasion of Norway on April 9 was a strategic surprise for both the Norwegians and British. The Norwegians had concerns about British intervention interrupting its ore trade with Germany. Not wanting to be boxed in by the British, as occurred in World War I, the Germans wanted naval and air bases in Norway. German Admiral Raeder planned an unconventional move depending on surprise. According to him the planned Operation Weserübung “goes against all rules of naval warfare. According to those rules the operation could only be carried out if we had superiority at sea. This we did not have: On the contrary, we shall be carrying out the operations in the face of the

¹ “Changes in American, British, and even Soviet official attitudes to declassification in the 1980s allowed thousands of secret documents to be made available for public examination, and the result was extensive revisionism of the conventional histories of the conflict.” Nigel West, Historical Dictionary of World War II Intelligence, Historical Dictionaries of Intelligence and Counterintelligence, No. 7. Lanham, MD: The Scarecrow Press, Inc., 2008, xx.
clearly superior British fleet.” The British mindset was that the superior Royal Navy would deter any such German move. But lacking intelligence sources, ignoring some warnings, and with tight German security, the invasion succeeded at little cost.

Disaster was a teacher for Britain. On June 3, the Admiralty again ignored a signals intelligence (SIGINT) warning of unusual naval activity, and the German battle cruiser SMS Gneisenau sank the British carrier HMS Glorious with 1,500 hands. After this, the newly installed Prime Minister Churchill asked to see all new Enigma decrypts, prompting senior officers to request briefings on Enigma in response.

**Attack in the West**

The Norwegian surprise was followed by another a month later. Without declaring war to alert its neutral neighbors, Germany invaded Luxembourg, Holland, and Belgium. The initial seizure of the crucial Belgian fort at Eben Emael on May 10-11, 1940, entailed both tactical and technological surprise. The use of only 85 glider-borne troops, which landed on top of the fort’s 750 defenders, bypassed the extensive Belgian defense network intended to prevent the Germans from crossing the strategic Albert Canal bridges. Prior to the operation, the Germans successfully employed extensive denial, deception, and security measures to hide the training of paratroops and glider assault forces. The preciseness of their attack demonstrated excellent foreknowledge of the objective. The silent gliders defeated the Belgian’s warning system based on aircraft engine sound detectors. As British author James Lucas observed, a technological “military revolution occurred with the adding of a vertical flank to battlefield dispositions.” The use of airlifted troops, paratroops, and glider-borne soldiers was a surprising innovation first demonstrated in the Norwegian invasion that caught Dutch and Belgian defenders unprepared. German paratroops leapt over the Dutch strongholds and unexpectedly seized Dutch bridges and the airfield near Rotterdam into which reinforcements were flown. Other reinforcements were flown in by seaplane on the River Maas. The last Dutch resistance ended on May 14, and Belgium surrendered on May 28, 1940.

On May 22, Britain’s Government Code and Cipher School (GCCS) broke the German Luftwaffe Enigma code, which it read more or less without interruption for the rest of the war. Luftwaffe messages provided a lot of intelligence on ground and naval operations and plans as well as its own activities. But this was too late to affect the German offensive.

---


5 The Norwegians had little intelligence capability, British intelligence had few tested and believed human sources inside Germany, and Enigma decrypts were nonexistent at the time. Dutch intelligence warnings were received skeptically. Britain’s SIGINT organization, the Government Communications and Ciphers School (GCCS) alerted the Admiralty to a revealing decrypted German naval hand cipher, which the Admiralty ignored. Bad weather limited aerial reconnaissance. Aerial photos of the German port of Bremen had shown many assembled ships but their significance was not understood as aerial reconnaissance was not routine. Riste, *ibid*.; F. H. Hinsley, *British Intelligence in the Second World War*, Abridged Edition (London: HMSO, 1993), 12; Stephen Budiansky, *Battle of Wits: The Complete Story of Codebreaking in World War II* (New York: The Free Press, 2000), 140; and R.V. Jones, *Most Secret War: British Scientific Intelligence, 1939-1945* (London: Penguin Books, 1979, 2009).

6 GCCS began to break German Enigma codes in March-April 1940, and by June was starting to extract useful intelligence from this new source. Hinsley, *British Intelligence*, 18-26.

7 Budiansky, *Battle of Wits*, 149.

8 *Ibid*, 43.


10 Initially, the Poles broke early pre-war versions of Enigma and shared their success with the French and British. With the fall of Poland and France the effort against Enigma fell to the British. Collier, *Hidden Weapons*, 92.
The Enigma Machine

Enigma was a German developed enciphering machine introduced in the late 1920s. It was an electro-mechanical device using both a plug board and multiple 26-position rotors. Early versions used three rotors; later versions five. ’The greatest selling point was even if the machine fell into enemy hands it would still be useless. The secret of the machine lay in its rotors… [U]nless one knew which rotor went where, and what position each rotor started in, the Enigma machine was useless… At the time of its use it was the epitome of ciphering machines for Morse transmissions.’

There were more than 200 versions of Enigma codes used by the German armed forces, the SS, police, railroads, and others. Each had to be decrypted separately.


From a well-placed American Nazi sympathizer, the Germans knew the Allies were unprepared for operations on the Western front in the winter months of 1939-1940, and used the time to prepare a western campaign.11 Despite reports from Belgian, French, and Swiss intelligence, the timing and direction of the German attack into France on June 5, 1940 again achieved tactical surprise. “For the French it was axiomatic that the Ardennes were impassable.”12 The British deferred to this conviction.”13 German intelligence on the Allies was good.14 The fortresses of the Maginot Line were flanked and attacked from the rear. The French Army, much of the best of which was decimated in Belgium and around Dunkirk, was again surprised by the combined arms tactics of the German Blitzkrieg.15 France surrendered on June 22, 1940. With the fall of France, the focus of the war in Europe shifted to Britain, the Mediterranean, and the Atlantic.

Battle of Britain and the Blitz

The following month marked the beginning of the Battle of Britain. Radar became an important British source of intelligence, although from the end of 1939, tactical SIGINT from the Royal Air Force’s (RAF) Y-Service helped Britain’s Fighter Command detect takeoffs and direction of Luftwaffe planes before their detection by radar.16 The outnumbered Fighter Command, thus guided, inflicted heavy losses on the Luftwaffe, causing it in mid-November to revert to nighttime raids.

**Battle of the Beams.** In June 1940, an Enigma decrypt revealed the Luftwaffe was using a navigational beam called *Knickebein* to guide its bombers over Britain. Confirmed by prisoner of war interrogations and captured documents on downed German aircraft, the British developed masking beacons (“meacons”), which by September were having an effect. “The early detection and partial frustration of *Knickebein* – a feat then known to only a few – was an early and major British victory in

13 The British ignored the warnings from Paul Thümmler, a high-ranking Abwehr (German military intelligence) officer that the attack would come through the Ardennes. Referred to as A-54, Thümmler previously had supplied good information on German plans. Hinsley, *British Intelligence*, 12, 26-30.
15 Close air support of the Wehrmacht from the Luftwaffe was a tactical surprise. Collier, *Hidden Weapons*, 88.
16 The RAF Y-Service focused on tactical SIGINT and low level codes and was not privy to the highly sensitive Enigma decrypts at this time. Hinsley, *British Intelligence*, 17, 38-40.

©2015 AFIO, All Rights Reserved 03/18/2015
the Battle of Britain.”17 When the Germans introduced improved bombing beams, the British rapidly countered them. The improved Y-Gerät navigational beam was introduced in January 1941; the British had operational countermeasures by February that lowered significantly German bombing accuracy.18 “By February 1941 the Battle of the Beams was as good as won.”19 The last large Luftwaffe raid on London occurred on May 10-11. In May, most German bombers redeployed to the forthcoming Eastern Front.

Anti-Nazi Spies Who Helped the Allies

The Allies were aided by several anti-Nazi sources within Germany who knowingly leaked information. In November 1939, Hans Ferdinand Mayer, an anti-Nazi mathematician and physicist, wrote a seven-page report on German weapons advances, many of which were unknown to the British. Given anonymously to the British Naval attaché in Oslo, the “Oslo report” revealed how the Junker 88 was to be used as a dive bomber; that the German navy had a radio-controlled anti-ship rocket driven glider* that was being tested at Peenemünde, a weapons research site; British bombers could be detected by radar at 120 kilometers distance, and Germany had another parabolic dish radar, the Würzburg, operating at 50 centimeters wavelength; The Luftwaffe could detect its own bombers via a system operating at 6 meters wavelength; and the Navy had two new torpedoes that were radio and acoustic controlled and were magnetically fused. This intelligence was largely ignored by the British ministries until R.V. Jones became the head of scientific intelligence for both the Air Ministry and MI6.**

Paul Thümmel “a high ranking officer in the Abwehr… had originally offered his services to the Czechs, who referred to him as A-54. He supplied not only good information about the equipment, the order of battle and the mobilization plans of the German Army and Air Force, but also advance notice of the German plans for action against Czechoslovakia from the spring of 1938, for the seizure of Prague in the spring of 1939 and, from that spring, for the attack on Poland.”***

“The Poles had achieved this success [in breaking Enigma] with brilliant mathematical ingenuity, by methods they would have been unable to devise but for the fact that the French Secret Service had supplied them with material obtained from Hans-Thilo Schmidt, a German employee of the cipher branch of the German Army.”#

Fritz Kolbe was an anti-Nazi courier for the German Foreign Ministry. From 1943 he provided more than 2,600 documents with significant intelligence to Allen Dulles, chief of the OSS in Switzerland, including on morale in Berlin, German expectations for the Allied invasion, the V-1 and V-2 rocket programs, advanced jet aircraft, and exposed the German spy “Cicero” in the British embassy in Istanbul.##

War at Sea

“[I]t was quickly realized by strategists on both sides that the war would be won or lost on the question of whichever side successfully dominated the Atlantic Ocean.”20 In August 1940, Germany began unrestricted submarine warfare with the goal of isolating Britain and starving it into submission. “The Battle of the Atlantic was the dominating factor all through the war,” according to

---

18 Hinsley, British Intelligence, 47-8.
19 R.V. Jones, Most Secret War: 179.
Churchill. Except for agents reporting the departure of U-boats from their base at Brest, France, and direction finding (DF) on radio transmissions, there was no intelligence on U-boats. By the end of 1938, the Germans were reading one of the Royal Navy’s codes. The naval cryptanalytic service, the B-Dienst, by late 1941 was also reading British Naval Cipher #2 and Naval Cipher #3 used for Anglo-Canadian-American convoys and directing U-boats to intercept the convoys.

At GCCS in early 1941, cryptanalytic efforts against the naval versions of Enigma were aided by the captures of a German armed trawler, two weather ships, and U-110 that provided an Enigma machine, additional rotors, and tables of settings. GCCS was able to break the German Navy’s home waters and dockyards codes and began to read other naval traffic. Through Enigma decrypts the Royal Navy was able to eliminate eight clandestine German Navy support ships in the Atlantic, and by June had reduced the U-boats’ successes against convoys.

When the German battleship DKM Bismarck forayed from Norway into the north Atlantic in May 1941, British DF and traffic analysis proved decisive in tracking her after she sank HMS Hood and damaged Prince of Wales and escaped. A decrypted Luftwaffe message revealed her destination was Brest, France, and on May 26 Bismarck was intercepted and sunk.

When the US entered the war, U-boat commander, Admiral Raeder, turned his attention to the East Coast of the US. In the first six months of 1942, almost 500 ships were sunk off the North American coast. U-boat sinkings of merchant vessels far exceeded the shipbuilding capacity of Britain.

In 1942, the Germans came to realize the scope of supplies reaching the USSR and turned to intercepting convoys bound for Murmansk. A low point for the Allies came with Convoy PQ-17 that in three days in July 1942 lost 23 out of 36 ships to U-boats and Luftwaffe aircraft from northern Norway. Fearing that the German battleship KMS Tirpitz was at sea, despite a lack of SIGINT, First Sea Lord Sir Dudley Pound ordered PQ-17 to scatter. “...[N]ot for the first nor the last time, [SIGINT] was unable to provide that last and vital clue to the intentions of the enemy...”

Southeast Europe, the Mediterranean, and North Africa

On June 11, 1940 Italy entered the war. Its invasion of Albania was a surprise. However, GCCS decrypts gave a month’s warning of Italy’s September attack from Libya on Egypt. Counterattacking in early December, the 30,000-man British force captured half of Italy’s 250,000-man invasion force. Geographically, Italian East Africa posed a threat to the Suez Canal and Egypt’s security. Britain’s Combined Bureau Middle East (CBME), an adjunct to GCCS at Bletchley Park, was deciphering 90% of Italian radio messages in East Africa, which was a major aid for defeating Italy’s forces there.

North Africa. Despite Enigma decrypts (now identified by the codeword “ULTRA”) and Y-Service intercepts of the introduction of Luftwaffe units into North Africa in December 1940, the British were

22 Hinsley, British Intelligence, 50-58.
23 Hinsley, Cambridge address.
24 Budiansky, Battle of Wits, 189.
25 Roberts, review, 2.
26 Hinsley, British Intelligence, 308.
27 Ibid., 154.
29 Ibid., 319.
30 Collier, Hidden Weapons, 114.
31 Budiansky, Battle of Wits, 182.
reluctant to believe German army forces were in North Africa until Field Marshall Erwin Rommel’s
initial offensive on February 22, 1941. The Germans used ground and air reconnaissance well, and
its field SIGINT unit exploited the poor British communications security. Rommel’s signals battalion
warned of Britain’s May and June counterattacks, which stalled when they ran into superior German
armor and anti-tank guns for which there was no forewarning. British field intelligence was weak. From 1941 through mid-1942 Rommel enjoyed a significant SIGINT advantage over the British in North Africa. In January 1942 the Germans began to read the cipher of the US Army attaché in Cairo, Colonel Frank Fellers, who reported in detail on the conditions and plans of the British Army. Feller’s messages were a great advantage to the Germans. He inadvertently tipped off the Germans to convoys planning to relieve the British-held island of Malta between Italy and Libya in June 1942, and to the precursor commando raids against 9 Axis airfields in Libya and Crete. British and Free French commandos were slaughtered. Only 2 ships out of 6 of the Gibraltar convoy reached Malta; the Alexandria 11-ship convoy turned back under heavy air attack with serious losses. The timing and direction of Rommel’s May 1942 assault was based on what he learned from SIGINT. By the end of June Rommel had driven the British out of Libya and advanced to within 90 miles of Alexandria, Egypt.

The British learned via ULTRA that Germans had broken the US attaché code and notified the US. In July, Rommel’s SIGINT battalion was overrun by the Australians, which revealed how successful German SIGINT was and hurt Rommel’s subsequent effectiveness significantly. Yugoslav, Greece, and Crete. On April 6, 1941 the German army invaded Yugoslavia, after a British encouraged coup d’etat and, along with Italian forces, entered Greece. Alerted by a HUMINT source, the British pulled troops from North Africa and sent them to Greece. However, with no photoreconnaissance capability and poor field intelligence, British forces were no match for the Wehrmacht and by late April, were evacuated. SIGINT, however, helped reduce the scale of the calamity.

On May 20 German airborne forces invaded Crete. GCCS had “deciphered the complete German
invasion plans for Crete at least three weeks in advance of their intended date of operations.” But
the Allied commander, General Freyberg, was convinced it would be a seaborne invasion and had
poorly positioned the island’s defenders. The British had also overestimated the size of the attacking
force. The Allies abandoned the island by the end of the month. It was a Pyrrhic victory as the Germans badly underestimated the size of the defending force. German casualties were considerable and “left them with a crippled airborne arm” that was not used again in the West for the remainder of the war.

33 Hinsley, British Intelligence, 66.
34 Ibid., 77-9.
36 Hinsley, British Intelligence, 198, and Deac,” Intercepted Communications.”
37 Ibid.
38 Budiansky, Battle of Wits, 267; Hinsley, British Intelligence, footnote 229; and Deac, "Intercepted Communications.”
39 Hinsley, British Intelligence, 73.
40 R.V. Jones, Most Secret War, 204.
41 Some historians point to Freyberg’s bias as paralyzing his actions in light of the intelligence he
42 Hinsley, British Intelligence, 84.
Elsewhere in the region Axis intelligence and propaganda fueled anti-British sentiment in the Middle East prompted the British to divert troops to Syria and Iraq from North Africa.43

Barbarossa

On June 22, 1941 Germany invaded the Soviet Union. Despite many intelligence indicators and warnings, Stalin and Soviet forces were caught by surprise. 44

"Richard Sorge [a Soviet military intelligence (GRU) asset in Tokyo] ... receive[d] solid information about a planned Nazi surprise attack against the Soviet Union. Joseph Stalin, who had signed a non-aggression pact with Hitler two years before, refused to believe the Nazi ruler would have the audacity to violate the treaty,"45 The Soviet's Rado espionage ring in Switzerland provided warnings, as did the Soviet military attaché's agents in Berlin, the Yugoslav military attaché, and Swedish sources. It became known that the Abwehr was recruiting specialists on the Ukraine, Crimea, and the Caucasus 46 In preparation, the Germans had entered Romania in October 1940. Reports of German plans from agent A-54 (Paul Thümmel) were ignored.47 On June 4, 1941 the decryption of a Japanese diplomatic message from Berlin to Tokyo revealed that Hitler had decided Communist Russia must be eliminated.48 A week later the British Foreign Secretary gave the Russian ambassador full details of British intelligence on the German build-up.49,50

Two weeks after the German invasion, London started to provide the Soviets regular intelligence summaries about the Eastern Front via the British Military Mission in Moscow. However, not everything was shared. ULTRA indicated that the Germans were reading Soviet ciphers. This intelligence was not passed to the USSR.51

Of great strategic significance, “[w]ithin a few weeks of the German invasion of Russia, [Sorge] was able to tell Moscow, on the highest authority, that the Japanese government had no immediate intention of attacking the Soviet Union and that its eyes were fixed on Indo-China and the Netherlands East Indies... On the strength of [Sorge’s information] the Soviet High Command further reduced its forces in the Far East by moving to European Russia substantial formations which arrived...


46 Collier, Hidden Weapons, 186-90.

47 Paul Thümmel (A-54) was an asset of Czech intelligence, which after Germany seized Czechoslovakia, moved to London. A-54’s reports were provided to both the British and Soviets by the Czechs. Hinsley, British Intelligence, 90-1.

48 After breaking the Japanese diplomatic code (Purple) in late 1940, the US provided GCCS with the results of its cryptanalysis and copies of the decryption machines. Ibid., 115.

49 Ibid., 109.

50 In March 1941 GCCS broke the German railroad Enigma codes, which revealed the widespread movement of German forces to opposite Russia. Budiansky, Battle of Wits, 186.

51 As Stalin severely limited intelligence sharing with Allies, British knowledge of Soviet order of battle was based on German assessments revealed through ULTRA. Hinsley, British Intelligence, 115.
in time to take part in the defence of Moscow and the Soviet counter-offensive in the winter of 1941-42.” The Battle of Moscow from October 1941 until January 1942 frustrated Hitler’s priority objective.

GCCS could read both German police ciphers and the SS’s Enigma key beginning in the spring of 1942. ULTRA revealed SS treatment of people in the captured territories and the exterminations of Jews.

In September 1941 the Deutsche Reichspost, the German telephone and telegraph organization, broke the American A-3 voice encoder (vocoder). Through a site on the Dutch coast, it had “become adept at intercepting and breaking A-3 [telephone] calls between President Franklin Roosevelt and other prominent political and military leaders, including Prime Minister Winston Churchill.” The A-3 was never trusted by Army Chief of Staff George Marshall and was replaced by the SIGSALY in July 1943.

Surprises in the Pacific

At the end of World War I, Japan had enlarged its Pacific island holdings and gained a foothold in China. In 1931, Japan invaded Manchuria, a resource rich area of China, and created the puppet state of Manchukuo. In the face of Western criticism of its actions and atrocities, Japan withdrew from the League of Nations. By 1934, Japan had instituted an aggressive espionage campaign against the US. Through various spies it compiled by 1941 a 200-page encyclopedia on the capabilities of the US Navy. A spy ring in Honolulu reported on Pearl Harbor and DF from Japanese controlled Kwajalein Island tracked air patrols out of Hawaii. The Japanese apparently also had broken US and British diplomatic codes.

Pearl Harbor. “Prior to Pearl Harbor... US policymakers held assumptions and expectations – that it would be impossible for Japan to attack a well defended and distant naval base – that contributed to the lack of warning and preparedness.” From the Japanese perspective, a preemptive strike against the US fleet in Hawaii was a necessary prelude to any move in force into Southeast Asia and its needed natural resources.

52 Collier, Hidden Weapons, 206.
53 Budiansky, Battle of Wits, 198.
56 As a member of the World War I Entente Powers, Japan was given the League of Nations mandate over former German territories in the Pacific and the German concession in Shandong province of China. Mark R. Peattie, Nanyo: the Rise and Fall of the Japanese in Micronesia, 1885-1945, Pacific Islands Monograph Series, No. 4. Honolulu: University of Hawaii Press, 1988, 43.
59 This DF intelligence was valuable in planning the Japanese fleet’s approach to Hawaii in December 1941. The spy ring’s reports on the depth of Pearl Harbor prompted the Japanese to develop shallow water torpedoes that were used with devastating effect on December 7, 1941. Kotani, Japanese Intelligence.
The US had little insight into Japanese military moves at the time of the attack. US intelligence was fragmented, “disorganized and under-resourced.” President Roosevelt had already set up his own private network of spies because the traditional intelligence system left him so much in the dark on what was happening overseas. “The primitive and parochial intelligence units in the Army, Navy, and State Department were underfunded and undermanned dumping grounds for poor performers.” Most of Roosevelt’s focus, however, was on Europe.

By August 1940, the US Army’s Signal Intelligence Service (SIS) had broken the Japanese diplomatic code, which led to competitive friction with the US Navy over responsibilities for decryption and reporting. The “success… in breaking the Japanese diplomatic code… had the ironic effect of distracting attention” from the more important naval operational code, designated JN-25. “It was only the lack of manpower – and machine power – that prevented the Navy from reading JN-25 in the critical months before Pearl Harbor.” US Navy SIGINT personnel were following Japanese naval movements by traffic analysis. But the Japanese, realizing that Americans were monitoring their communications, had radio operators generating dummy traffic to mislead the eavesdroppers into thinking that some of the ships sailing through the North Pacific to attack Pearl Harbor were still in home waters. The attack on Pearl Harbor represented a strategic, tactical, and technological surprise for the US.


65 Earlier, in 1936, the US Army Secret Intelligence Service (SIS) had cracked the main Japanese diplomatic code “Red.” In March 1939 the code was changed and named “Purple.” Purple was finally broken on September 20, 1940. The codename “Magic” stuck after SIS analysts were deemed “magicians” for having broken Purple. Andrew, *President’s Eyes Only*, 105.

66 Japan’s diplomatic codes were broken by the Soviets in the late 1930s. Kôzô Izumi, a Japanese diplomat whose Russian wife was an NKVD [Soviet secret service] asset, provided Japan’s code books and keys to the Soviets. Hiroaki Juromiya & Andrej Peplonski. “Kôzô Izumi and the Soviet Break of Imperial Japanese Diplomatic Codes.” *Intelligence and National Security*, 28, no. 6 (2013), 769-84.


68 Ibid., 5-6.

69 *Ibid.*, 217. Some success was made against JN-25 in 1940, but a variant, JN-25b, was introduced in December 1940. “A detailed study by the… NSA, later concluded that the failure to break JN-25b was due solely to a shortage of resources.” From 1939 usually only two worked on the problem, sometimes 5. By late 1941 the number increased to 8. When later broken JN25b had many indicators of a surprise attack by 6 carriers on a fleet in the “north Pacific.” This reflected the “myopia” of the Navy Department of the significance of SIGINT. Andrew, *President’s Eyes Only*, 120-122.

70 The Pacific DF net consisted of stations at Corregidor, Guam, Pearl Harbor, Dutch Harbor in the Aleutians, Samoa, and Midway Island. However, in November and December 1941, Traffic Analysis reports were sent to Washington by mail and were running two, sometimes three weeks behind. Pearl Harbor Review, www.nsa.gov/about/cryptologic_heritage/center_cryptologic_history.

71 Ibid.

72 The Japanese Navy’s abilities were underestimated by US decision makers. The shallow water torpedoes were one example. The Japanese had studied the November 1940 British attack on the Italian fleet in Taranto that used such torpedoes. Ironically, in early 1941, senior US Navy officers had envisioned an aerial torpedo attack on Pearl Harbor launched from aircraft carriers but they had no impact on increasing readiness. Frans B. Bax. “Intelligence Lessons from Pearl Harbor.” *Studies in Intelligence* (November 2002), 1-9, cited in the Kent Center *Occasional Papers: Making Sense of...*
Philippines and Southeast Asia. Japan’s turn toward Southeast Asia was predicated by the need for resources. It attacked the Philippines and Malaya on December 8. Despite several hours of warning that the Japanese had attacked Pearl Harbor confusion hampered American actions in the Philippines. “MacArthur was convinced that Japan would not attack until April 1942. He claimed that by then the Army’s defensive preparations in the Philippines would be complete...”73 “MacArthur’s irresponsible optimism” contrasted sharply with US Asiatic Fleet commander Admiral “Hart’s stark realism.”74 Half of the Army Air Force’s aircraft were destroyed in the initial Japanese air raids. Japanese forces invaded British Malaya at the same time. The Japanese War Ministry’s espionage Unit 82 had discovered that all of Singapore’s defenses faced the sea and the “impregnable fortress” was largely unguarded toward the land.75 The British had badly assessed Japanese capabilities and, blinded by their biases, ignored what intelligence provided.76 Singapore fell by February 15 and the Dutch East Indies fell by March 9.

South Pacific. In January 1942, the Japanese moved on the Australian-administered South Pacific Islands beginning with an assault on Rabaul, New Britain. From here the Japanese advanced on northern New Guinea and into the Solomon Islands to cut the supply lines from the US to Australia and New Zealand.

TURNING OF THE TIDE: 1942 – 1943

Faced with multiple fronts in the war, in January 1942, the US and Britain agreed on a complete exchange of military intelligence at all levels. By that autumn a division of labor was agreed concerning SIGINT: Britain would take the lead against Germany and Italy, the US against Japan. Canada joined the Atlantic intelligence effort against the U-boats, and by June GCCS was sharing decrypts of U-boat messages. In the Pacific Australia and the US joined forces in a combined SIGINT effort.77

Mediterranean and North Africa

Despite the multiple defeats suffered in 1941, British forces dealt significant blows to the Axis that year. Intelligence contributed to all of them.

Battle of Cape Matapan. In late March, the Royal Navy, tipped by SIGINT, intercepted the Italian fleet south of Crete and sank 3 cruisers and 2 destroyers and damaged a battleship. Directing airborne reconnaissance to disguise the true source as sensitive ULTRA intelligence, “…it was the first naval battle in which carrier-based aircraft played a decisive role, and the first battle of any kind in the Second World War in which the timely use of signals intelligence played the decisive role.”78

Transnational Threats, 3. no. 1. Central Intelligence Agency, Center for the Study of Intelligence (October 2004). The front line Japanese Navy fighter plane, the Zero, with its long range and maneuverability, was also superior to any US fighter at the time.

74 Ibid., 23.
75 Little is published in English from Japanese sources on Japan’s intelligence successes in World War II. See Kotani, Japanese Intelligence.
76 Britain’s strategic plan for the defense of Singapore depended upon strategic warning in time to allow the Royal Navy to reinforce the Far East from Europe. On December 10, 1941 Japanese aircraft sank Prince of Wales and Repulse off Malaya. Admiral Sir Tom Phillips adhered to the Admiralty view that capital ships could not be sunk by aircraft, despite contrary evidence from the controversial 1921 tests by US General Billy Mitchell. David, Military Blunders, 65. There was also a racist element in viewing the Japanese and their abilities. Collier, Hidden Weapons, 247.
77 Hinsley, British Intelligence,115-6.
78 Budiansky, Battle of Wits, 186.
Italian fleet withdrew and the battle “consolidated British naval control of the eastern Mediterranean.”

**Malta.** The British held island of Malta was a constant thorn in the side of the Axis sitting astride the supply lines to North Africa. GCCS had broken many of the Italian codes by June 1941. A single intercept allowed British destroyers from Malta on April 16, 1941 to sink an entire convoy carrying elements of the 15th Panzer Division. Decrypts provided advance notice of every supply convoy from Italy to Libya and allowed British destroyers and aircraft in late 1941 to sink 48 ships resupplying North Africa, stopping reinforcements and starving the *Afrika Korps* of fuel.

**El Alamein.** Rommel’s advance deep into Egypt, slowed by British defensive actions, stalled in early July 1942 due to supply shortages and exhaustion. On July 10 he suffered several intelligence related strategic losses. One was when Australian troops overran his field SIGINT unit. Its capture revealed how successful German SIGINT had been. That same month the British broke the Wehrmacht’s medium grade field cipher used in North Africa. GCCS already could read almost daily the Luftwaffe’s Enigma for North Africa. The British also informed the US that its diplomatic code, used by the US military attaché in Cairo, was compromised, ending Rommel’s “*gute Quelle*” (good source). Coupled with the loss of intelligence sources, Rommel was deceived by planted British disinformation as to the Eighth Army’s readiness. The British attack at El Alamein on October 23 surprised the Germans. Rommel was away in Germany. Montgomery was well informed of German reactions via aerial reconnaissance, Enigma decrypts, and the Army Y-Service’s tactical SIGINT, which had improved greatly. Rommel’s attempt to counterattack on October 28 was detected by RAF reconnaissance and Y-Service intercepts and frustrated. This “defeat was the turning point of the battle.” From then on Rommel was on the defensive retreating across Egypt, Libya, and Tunisia.

**Operation Torch and Allied Victory in North Africa.** On November 8, 1942, Allied forces landed at Casablanca, Oran, and Algiers, in French North Africa creating a second front for the *Afrika Korps*. Human and diplomatic sources had helped prepare for Torch. Donovan [the Coordinator of Information]... “sent a dozen officers to work as ‘vice consuls’ in several North African ports, where they established networks and acquired information to guide the Allied landings...” Topographical intelligence was good. The British could read French air force codes. Despite the fact that German naval intelligence had broken Allied convoy codes and the Torch convoys entering the

---

79 Hinsley, *British Intelligence*, 73.
80 Italian codes based on the Hagelin C38 machine were “a baby compared to Enigma” and were easily broken. Hinsley, Cambridge address.
86 Deac, “Intercepted Communications.”
87 The British cut their teeth on deception operations in the Middle East. Via doubled Axis agents a special deception unit fed false order of battle information to German intelligence. “The deception operation for Montgomery’s offensive [at El Alamein] was one of the great success stories of the war.” Holt, *The Deceivers*, 240, 244.
88 During battle Y-Service intercepts and DF were more valuable than Enigma reflecting unit movements and conditions. Hinsley, *British Intelligence*, 248.
93 The B-Dienst did not discover the Torch convoys bound for North Africa. “Only twenty-three of the more than one thousand transits to North Africa were intercepted and sunk by U-boats.”
Mediterranean were sighted five times by the Luftwaffe, 340 ships passed through Gibraltar without loss.\textsuperscript{94} Increasingly bold British deception operations were employed as well as deceptive tactical communications.\textsuperscript{95} Using doubled Abwehr agents, the British suggested there would be simultaneous attacks against Norway and northern France and a major relief operation for Malta.\textsuperscript{96}

Despite the initial success of the Torch landings, once the seasoned Wehrmacht directly opposed the untested US Army, the poor state of US tactical intelligence and command and control was exposed. Poor maps, which led to units getting mixed up, contributed to the disaster at Kasserine Pass in February 1943. Despite intelligence warnings, the US II Corps commander failed to prepare adequate defenses. US forces were also surprised by the new German Tiger tanks against which American 37-mm guns had little effect.\textsuperscript{97}

With sea lanes from Italy largely cut, German forces relied on Luftwaffe air transport for reinforcements and critical supplies. In April 1943, SIGINT prompted Allied air attacks on concentrated Luftwaffe transports in Tunisia destroying over 100 transport aircraft.\textsuperscript{98} These losses, coupled with the transport losses at Stalingrad, crippled Luftwaffe air transport for the rest of the war. On May 8, 1943 the North African campaign ended with the surrender of remaining Axis forces in Tunisia.

**Eastern Front**

**Battle of Stalingrad.** From July 1942 into February 1943 the Wehrmacht and the Red Army were locked in the most monumental strategic battle of World War II.\textsuperscript{99} Hitler underestimated the capabilities of Russian troops and armor.\textsuperscript{100} The Soviet counteroffensive of mid-November annihilated the German Sixth Army. By the time of the Casablanca Conference at the end of January 1943 the strategic situation for the Allies had changed.

The British Joint Intelligence Committee assessed that the Wehrmacht had lost 40 divisions, 14 at Stalingrad alone.\textsuperscript{101} British assessments were aided by a further SIGINT success – the breaking of the German “Fish” radio-teleprinter ciphers, which tied the German High Command (OKW) to major German headquarters. Codenamed “Tunny,” Fish intercepts “[t]hough less voluminous than Enigma, and more difficult to decrypt …made a valuable contribution to Whitehall’s knowledge of the strategic situation on the Russian front: it revealed the planning, the [German assessments of the situation] and the supply difficulties of the German commands.”\textsuperscript{102}

Little is published in English on Soviet intelligence successes in World War II and understanding of Soviet SIGINT is poor. In Stalin’s purges of the late 1930s the “GRU [military intelligence] was smashed to pieces.” “... [I]ntelligence officers and undercover agents were recalled in the hundreds and put to death.” Consequently the impact of “the purges makes any rational accounting of the

\textsuperscript{94} Hinsley, \textit{British Intelligence}, 260

\textsuperscript{95} British employed deceptive radio transmissions similar to those of previous Malta relief convoys. German U-boats were ordered to withdraw eastward in reaction and were out of position for the landings. \textit{Ibid.}, 260.


\textsuperscript{97} David, \textit{Military Blunders}, 348-64.

\textsuperscript{98} These losses in Tunisia represented almost 25% of the Luftwaffe’s transport capacity. Hinsley, \textit{British Intelligence}, 290.

\textsuperscript{99} \textit{Ibid.}, 125.

\textsuperscript{100} The Soviet T-34 tank proved to be the equal or superior to German armor until the introduction of the heavier Panther and Tiger tanks later in the war. David, \textit{Military Blunders}, 197-208.

\textsuperscript{101} Hinsley, \textit{British Intelligence}, 323.

\textsuperscript{102} Fish was far more complex than the Enigma. Hinsley, Cambridge address, and Hinsley, \textit{British Intelligence}, 323.
[Soviet] assessment process almost impossible." 103 Distrustful of Britain, Anglo-Soviet intelligence exchanges after a honeymoon period in 1941 diminished. 104

**Battle of Kursk**. The British tipped Moscow to the upcoming German offensive, which started on July 4, 1943, although Soviet intelligence probably already had a good idea of the planned German offensive from its own sources. Soviet intelligence had improved significantly by the time of the battle. Aerial reconnaissance of German forces was good, which added to Enigma-based reports from the British Military Mission, reports from the Lucy spy ring, and probably also from Soviet SIGINT. 105 Unknown to London at this time a Soviet agent within GCCS was also passing Tunny intercepts to his Soviet handler. 106 The Soviet counterattack eight days later resulted in the largest tank battle ever fought. Losses at Kursk on both sides were enormous but more significant for Germany. This was the last German strategic offensive on the Eastern Front, and the Soviets had the initiative for the rest of the war.

**Turnaround in the Pacific**

**Battles of Coral Sea and Midway**. A major intelligence breakthrough for the US took place in February 1942 when Navy cryptanalysts began to read Japanese messages sent in the JN-25b naval general-purpose code. 107 In mid-April, SIGINT intercepts revealed that a large Japanese convoy was to enter the Coral Sea early in May. The May 8-9 Battle of the Coral Sea revealed that US tactical intelligence was lacking; Japanese air reconnaissance found the US fleet first, but aerial counterattacks stopped the invasion force headed for Port Moresby on New Guinea’s southern coast. 108

Less than a month later, SIGINT would contribute to a strategic defeat of the Imperial Navy. Admiral Yamamoto’s decision to attack Midway Island was based on the erroneous belief that Doolittle’s raid on Tokyo on April 18 came from Hawaii via Midway, not from the carrier *Hornet*. 109, 110 Yamamoto


106 John Cairncross, one of the “Cambridge Five” Soviet spies, provided the Soviets verbatim transcripts of Tunny decrypts thereby confirming that the British had broken German codes. Cairncross was uncovered as a spy in 1951.


110 In early 1942 there were a series of carrier hit and run operations against Japanese-held islands. USS *Enterprise* struck the Marshalls, Wake, and Marcus islands in February and March. USS *Yorktown* also attacked the Marshalls. Doolittle’s B-25 bombers were Army Air Corps land-based aircraft and not perceived as capable of taking off from Navy carriers. “The Americans had no inkling of the effect the Doolittle raid had had on the Japanese sense of honour.” This led the Japanese to conclude it had to take Hawaii and Midway was the first step. John Keegan, *Intelligence in War: Knowledge of the Enemy from Napoleon to Al-Qaeda* (New York: Alfred A. Knopf, 2003), 200.
sought a decisive battle against the US Navy before the US's industrial might could become a factor in the war. On May 14, 1942 Hypo, the US naval cryptographic unit in Hawaii, decrypted a message about an "invasion force" for "AF." "AF" was unknown and within the Navy there were arguments over the Japanese designation "AF" and the Japanese objective. Using a ruse about a water shortage on Midway, subsequent decrypts confirmed that "AF" was Midway Island and gave the timing of attack -- June 3 or 4. Due to SIGINT the US, although outnumbered, was "able to concentrate its forces for a slight advantage where it counted the most, at the scene of the battle." US Admiral Nimitz knew the Japanese objectives, order of battle, organization, timetable, and direction of attack. The result was a stunning victory for the US, four of the first-line Japanese carriers were sunk, their pilots lost. After Midway the Imperial Navy remained on the defensive for the rest of the war.

"Midway moved code breaking and signals intelligence from an arcane, little understood, and usually unappreciated specialty to the very center of military operations." "Midway, Nimitz said later, 'was essentially a victory of intelligence.'

Despite the revelations through SIGINT, there were intelligence failures that were costly for the Allies in the Pacific. The August 7, 1942 Guadalcanal landings by US Marines caught the Japanese by surprise, but Imperial forces reacted quickly. In the Battle of Savo Island on the night of August 8-9, 1942 a Japanese surface fleet attacked, and poor Allied tactical intelligence and command and control contributed to the loss of 1 Australian and 3 US cruisers.

The Counterintelligence War

When war broke out in 1939, Britain was consumed with fear of fifth columnists. The British Security Service (MI5) "managed to neutralize an extensive network of Nazi sympathizers in the United Kingdom by pretending to represent the German government...." SIGINT played an important role in counterintelligence operations. The British Radio Security Service decrypted hasty Abwehr preparations to introduce agents into Britain. With this advanced knowledge all but one of the 21 sent to England between September and November 1940 were captured. Of concern, GCCS in early 1940 intercepted "Nazi traffic indicating the German ambassador in Italy was receiving messages..."

111 In July 1940 Congress passed the "Two Ocean Navy" bill and the US Navy was building 15 battleships, 11 carriers, 54 cruisers, 191 destroyers, and 73 submarines. Parker, "Priceless Advantage, 37. This led to the Japanese belief it had to destroy the US Pacific fleet early in 1942. See also Patrick D. Weadon, The Battle of Midway: How Cryptology enabled the United States to turn the tide in the Pacific War (National Security Agency brochure), http://www.nsa.gov/about/cryptologic_heritage/center_crypt_history/publications/battle_midway.shtml
112 Budiansky, Battle of Wits, 19.
113 "This situation was in sharp contrast to the Battle of Coral Sea only a few weeks before, when CINCPAC was virtually blind to unfolding events." Parker, "Priceless Advantage," 61.
114 Budiansky, Battle of Wits, 21.
115 Andrew, President's Eyes Only, 125.
116 Coast watchers had provided 80 minutes of warning of Japanese air attacks on Guadalcanal during the day but were ineffective at night when the Japanese fleet attacked. Collier, Hidden Weapons, 312-3.
117 John Bingham, aka "Jack King", "the British agent was handling six senior-level pro-Nazi operatives —five of them British subjects— who were regularly supplying him with British state secrets believing he was passing them on to the Gestapo. The archives show that, between 1942 and 1945, 'King' helped MI5 identify "scores... and probably... hundreds" of devoted Nazi sympathizers in the UK." "British spies infiltrated Nazi sympathizer groups, wartime files show," IntelNews.org, February 28, 2014, http://intelnews.org/2014/02/28/01-1427/ and BBC News, February 27, 2014, http://www.bbc.com/news/uk-26365085.
118 Also known as MI8, which ran the Y-Service.
119 One committed suicide. Of the 24 captured, five were executed, 15 imprisoned, and four became double agents for the British. Macintyre, Double Cross, 36.
from the US Embassy in London, including Roosevelt-Churchill correspondence. On May 18, MI5 arrested Tyler Kent, a code clerk in the US embassy for spying.

By December 1940 GCCS had broken the codes used between Abwehr headquarters and its stations. By the second half of 1941, the British had so complete a knowledge of the Abwehr’s organization and operations throughout Europe, Latin America, and Middle East that it posed little threat from then on. Using captured Abwehr agents who had been doubled, and recruiting others, the British began to feed the Abwehr false intelligence. An original purpose was to demonstrate that the agents sent were productive and it was unnecessary to send more. However, reading Abwehr Enigma codes the British began to see the value of turned agents for strategic deceptions. In January 1941 the British established the Twenty Committee — better known by its Roman numeral designation: XX, or double-cross, to coordinate controlled double agents worldwide. Almost all Axis agents in the Middle East and in the India Theater feeding the Germans in Kabul were under British control. “MI5 ran a double-cross system of labyrinthine complexity...” The British used every means possible in its counterintelligence operations and as the war progressed brought the US into its fold. The end result was that German intelligence, largely dependent upon human agents, was emasculated.

120 Sulick, *Spying in America*, 151.
121 Kent was a “virulent isolationist and a Nazi sympathizer,” (Sulick, *Spying in America*, 149) who resented not being a US foreign service officer. He became involved with the Right Club, an anti-Churchill group, headed by Captain Archibald Ramsay, MP, and with Baroness Anna Wolkoff (Volkova), a White Russian tied to the Germans. MI5 seized over 1,400 classified documents in Kent’s apartment. Ambassador Joseph Kennedy waived Kent’s diplomatic immunity, and he spent the remainder of the war in prison. Before 1939 Kent was in the US embassy in Moscow and had a Russian lover. “Nothing has yet surfaced in the available KGB files that mentions Kent,” but he probably gave the Soviets the keys to reading coded messages between Washington and its Moscow embassy. Peter Rand, *Kent’s Secret Plot Against FDR, Churchill, and the Allied War Effort* (Lyons Press, Guilford, CT, 2013), 113, 218.
123 One of the more interesting double agents was Juan Pujol, who arrived in England in the summer of 1942. A fabricator recruited by MI5, as Agent GARBO, by 1943 Pujol had established a network of 27 mythical sub-agents and sources of information for the Abwehr. He had a “remarkable talent for duplicity” and got the Abwehr to pay for his mythical subagents. He made the XX system self-financing. Project MIDAS “would prove to be one of the most profitable and least known operations of the war.” GARBO later would become an important deception vehicle for the Allies. Macintyre, *Double Cross*, 89, 116.
124 Before the war 70 German agents infiltrated into Britain. There were another 220 during the war hidden in 7,000-9,000 refugees that entered Britain each year. MI5 caught most. Only 3 are known to have evaded detection. Keegan, *Intelligence in War*, 289.
127 Nigel West, *Historical Dictionary of World War II Intelligence*, xxv. About the XX system Churchill wrote: “Tangle within tangle, plot and counter-plot, ruse and treachery, cross and double-cross, true agent, false agent, double agent, gold and steel, the bomb, the dagger and the firing party, were interwoven in many a texture so intricate as to be incredible and yet true.” Winston S. Churchill, *Thoughts and Adventures* (London, 1991), 55.
128 For example, TRIPLEX was material surreptitiously taken from foreign diplomatic pouches by the British, who often used an attractive woman as a “honey pot.” Ironically, the effort was run by Anthony Blunt, a homosexual MI5 officer who was also an NKVD spy. Nigel West & Oleg Tsarev, eds. *TRIPLEX: Secrets from the Cambridge Spies*. New Haven (Yale University Press. 2009).
129 The OSS counterintelligence branch (X-2) developed a close relationship with MI5 and in 1943 was included in the Double Cross system. X-2 was set up at urging of British officials and was privy to ULTRA materials that were denied OSS by the Army and Navy. Andrew, *President’s Eyes Only*, 139-40. Denial of cryptographic intelligence to OSS poisoned later relationships between the newly
Britain’s MI6 was severely hampered by German counter-espionage. The first attempt of the British to insert spies into France failed. “A high proportion of the Special Operations Executive (SOE) agents in France... were discovered by German radio counter-intelligence...” All agents dropped into Holland were captured. Despite its weaknesses, the Abwehr’s counterintelligence performed well [early in the war]. Working with the Gestapo it broke the Soviet ‘Rote Kapelle’ spy ring, penetrated major resistance networks in France, seriously damaged British clandestine operations in Belgium, and controlled and doubled back those in Holland.

In 1939 President Roosevelt assigned to the FBI the principal counter-espionage investigative responsibility. In 1937 the Abwehr had acquired the revolutionary Norden bombsight from a German immigrant and sympathizer. It also got the proprietary data for synthetic rubber. Through a double agent operation at the end of July 1941 the FBI rolled up all 33 Nazi agents in one night. The FBI was active throughout Latin America. The German spy ring in Brazil was quickly rounded up after Brazil’s August 1942 declaration of war on Germany. However, Axis spies in Argentina “flourished for much of the war,” but did not help the German war effort.

In June 1942 the Abwehr landed a sabotage team on Long Island that was discovered by a Coast Guard beach patrol and four more near Vero Beach, Florida. All were caught within weeks. The last spy attempt occurred in November 1944 when two spies were put ashore by a U-boat in Maine. Both were caught.

**INTELLIGENCE CONTRIBUTIONS TO ALLIED VICTORIES**

By mid-1943 the tide of battle had turned in the Allies favor in both Europe and the Pacific. Intelligence was playing an increasingly important role in the air war over Germany, the Battle of the Atlantic, Allied invasions in southern Europe, on the Eastern front, and in the Pacific. Strategic and tactical SIGINT became the backbone of intelligence.

<table>
<thead>
<tr>
<th>GCCS Successes Against Enigma and Italian Ciphers*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring 1940</strong></td>
</tr>
</tbody>
</table>


Hinsley, *British Intelligence*, 118.


The Army and Navy remained responsible for counterintelligence within their services and industrial contractors.

William Sebold, a German immigrant, was blackmailed by the Gestapo during a visit to Germany. He reported this to US authorities and became a FBI double agent. As the main conduit for Nazi spies’ reports to the Abwehr the FBI photographed all of the spies who came to Sebold’s New York City office. Peter Duffy, *Double Agent* (New York, Scribner, 2014). Historian G.J.A. O’Toole credits the Sebold case and British information on German operations in the Western Hemisphere with helping convince President Roosevelt to cooperate with British Security Coordination. *Honorable Treachery: A History of US Intelligence, Espionage, and Covert Action from the American Revolution to the CIA* (New York: The Atlantic Monthly Press, 1991), 351.


Named Operation Pastorius, the saboteurs were sent by the Sicherheitsdienst (SD), the intelligence arm of the SS and Nazi Party, not by the Abwehr, German military intelligence. Two of the poorly trained team, George Dasch and Edward Kerling “defected” and told FBI about the operation. Sulick, *Spying in America*, 144-145.

The British subsequently torpedoed the U-boat that landed them and alerted the FBI. Sulick, *Spying in America*, 145-6.
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 1940</td>
<td>Additional Luftwaffe Enigma key broken (Brown).</td>
</tr>
<tr>
<td>Winter 1940-41</td>
<td>Enigma decrypts grow from 50 to 250 per day.</td>
</tr>
<tr>
<td>February 1941</td>
<td>Luftwaffe Light Blue Enigma key broken (Luftwaffe operations in North Africa).</td>
</tr>
<tr>
<td>June 1941</td>
<td>German Navy home waters Enigma broken (Dolphin key).</td>
</tr>
<tr>
<td>June 1941</td>
<td>Wehrmacht Enigma key used on the Eastern Front broken (Vulture).</td>
</tr>
<tr>
<td>June 1941</td>
<td>Luftwaffe’s SIGINT service’s Enigma key broken.</td>
</tr>
<tr>
<td>June 1941</td>
<td>Enigma decrypts grow to 1,300 per day.</td>
</tr>
<tr>
<td>June 1941</td>
<td>Italian C-38m code broken revealing port activity and convoy movements in the Mediterranean to North Africa.</td>
</tr>
<tr>
<td>Mid-September To November 1941</td>
<td>Afrika Korps operational Enigma keys broken.</td>
</tr>
<tr>
<td>December 1941</td>
<td>Abwehr (German military intelligence) Enigma broken.</td>
</tr>
<tr>
<td>January 1942</td>
<td>All new Luftwaffe Enigma keys broken as soon as introduced.</td>
</tr>
<tr>
<td>Summer 1942</td>
<td>GCCS was solving 30 Enigma keys out of 50 in use.</td>
</tr>
<tr>
<td>December 1942</td>
<td>GCCS began to read the new, four-rotor, naval Enigma key (Shark) after a blackout beginning in February 1942.</td>
</tr>
<tr>
<td>Early 1943</td>
<td>GCCS broke “Fish” radio-teleprinter transmissions linking German high command with subordinate armies and army groups.</td>
</tr>
<tr>
<td>Mid-1943</td>
<td>Enigma decrypts grow to between 3,000 and 4,000 per day. Italian C-38 and Japanese PURPLE (diplomatic) codes in addition. GCCS eventually identified over 200 different Enigma keys.</td>
</tr>
<tr>
<td>March 1944</td>
<td>The “Fish” link from Berlin to Field Marshal von Rundstedt, commander of forces in France, broken, three months before the Normandy landings.</td>
</tr>
</tbody>
</table>


**Air War Against Germany**

By early 1943 British intercepts of Enigma messages, aircraft radio-telephony, navigational beams, and low-level codes provided a good understanding of Luftwaffe operations and defensive systems as well as providing several hours warning of most air attacks and probable targets. Enigma revealed intelligence on German radars. The Bruneval Raid of February 27-28, 1942 succeeded in obtaining key pieces of the *Würzburg* flak control radar from the French coast for examination and a captured radar technician. Analysis of German radar led to the development of “Window” or chaff, although it was not used for many months for fear of reciprocal action by the Luftwaffe negating Allied air defenses. 139

Long neglected before the war, the British greatly increased their photoreconnaissance capabilities and established a Central Interpretation Unit (CIU). Intelligence, however, had little impact on British strategic bombing policy before 1943 largely due to the personal predilection of the chief of Bomber Command, Air Chief Marshal Sir Arthur Harris, for nighttime strategic bombing of German cities. The US Eighth Air Force, however, developed a target intelligence organization at High Wycombe to support its daytime operations. 140 Special studies by the Research and Analysis Division of the Office of Strategic Services (OSS) on the German ball bearing industry and synthetic oil production industries aided strategic target priorities. 141

**Battle of the Atlantic**

139 Hinsley, *British Intelligence*, 141, 164-5, 170, and R.V. Jones, 40-1, 239-49.
141 O’Toole, *Honorable Treachery*, 414-5.
"...[T]he battle...in the Atlantic between December 1942 and May 1943 was the most prolonged and complex battle in the history of naval warfare."...[T]he very fact that the struggle was so prolonged and so finely balanced suggests that the ability to read [German] communications must have been an asset of crucial importance to the Allies. "Early warning of U-boat sailings was usually obtained from Home Waters Enigma." 142 "From characteristics such as length, call signs and format, the Allies could on many occasions tell if a radio message from a U-boat was a passage, sinking, sighting, weather, contact, or position report." 143 But by June 1941 GCCS began to read the U-boat Enigma, which eventually "transformed the situation." 144 Allied convoys were rerouted around U-boat wolfpack concentrations. Furthermore, the centralized command and control of U-boats resulted in frequent radio communication that was vulnerable to radio direction finding. "...[O]n many occasions D/F was the only timely communications intelligence available to the Allies on the activities of U-boats." 145 As there were periods when the Naval Enigma was unreadable, there were always delays in decrypting messages – in August 1941, for example, of six to seven days. 146 On February 1, 1942 the German navy added a fourth wheel to its Enigma machines greatly complicating it. GCCS could not solve it for eleven months. 146

In early 1943 the British learned that the B-Dienst was reading its ciphers and providing U-boats accurate intelligence on convoy movements. March 1943 marked the high point for U-boat sinkings of Allied ships. In mid-March 1943, convoys SC112 and HX229 ran into U-boat wolfpacks. "The battle around SC112 and HX229...was the costliest of the war." Of 90 merchant ships and 20 warships 22 were sunk with loss of only 2 U-boats. 147 Royal Naval Cipher #3 was replaced in June 1943; the new cipher was never broken by the Germans. 148

Also by early 1943 GCCS was reading the naval Enigma key. 149 At the same time the British introduced a new anti-surface vessel radar for patrol aircraft. 150 The Royal and US Navies carried out a unified anti-submarine warfare program. "They operated virtually as a single organization." 151 U-boat losses climbed to unacceptable levels. In late May, U-boats were withdrawn from the mid-Atlantic. A decrypted Japanese diplomatic message (Purple) in July confirmed the withdrawal and

142 Hinsley, British Intelligence, 307, 381.
143 David Syrett, "The Infrastructure of Communications Intelligence: the Allied D/F Network and the Battle of the Atlantic." Intelligence and National Security, 17, no. 3 (Autumn 2002), 169.
144 Hinsley, British Intelligence, 129.
146 Hinsley, British Intelligence, 134.
147 Keegan, Intelligence in War, 240.
148 Hinsley, British Intelligence, 308-10; Budiansky, Battle of Wits, 293.
149 'Shark' was the designator for the four-rotor naval Enigma machine. "Not only was it believed by the Germans that their codes were so complex that the Allies could never decrypt an encoded radio message in time to be of operational use, but it was also a firmly-held conviction by the [German navy U-boat headquarters] that it would be nearly impossible for the Allies to D/F, systematically and accurately, extremely short high-frequency radio transmission." Syrett, "D/F Network," 164. This was a major German intelligence failure.
150 Up until the end of 1942, the British "original [anti surface vessel] radar had worked...[but] it was now becoming useless because the Germans equipped their U-boats with receivers to detect it, and thus the approach of our aircraft long before they themselves could detect the U-boat." The new radar operated on a different frequency that U-boats could not detect. R.V. Jones, Most Secret War, 319.
151 Andrew, President's Eyes Only, 136. On May 20, 1943 the US Tenth Fleet was established to be a centralized clearing house for all aspects of anti-submarine warfare (ASW), including ULTRA, SIGINT, HFDF, Operations Research, convoy routing, and R&D. Prior to Tenth Fleet's establishment the Allies sank an average of 4 U-boats per month. In the month after its establishment the Allies sank 41 and average of 23 per month thereafter. US Navy, United States Tenth Fleet: From Anti-submarine Warfare to Cyberspace, http://www.public.navy.mil/fcc-c10f/Pages/ustenthfleethistory.aspx). This outstripped the rate of U-boat production for which air reconnaissance provided an accurate estimate. Kahn, Intelligence in World War II," 8.
Hitler’s hopes for new types of U-boats equipped with better flak, search receivers, and acoustic torpedoes. The U-boat attack on two convoys on September 20, 1943 marked “...their last substantial success in the Battle of the Atlantic.”

The Battle of the Atlantic was the longest battle of the Second World War – 2,073 days. "Without success in the battle of the Atlantic... there would have been no epic victories at El Alamein or in Burma – and there would have been no “Crusade in Europe,” launched via the Normandy landings of June 1944.”

Invasions of Sicily and Italy

**Sicily**: Allied deceptions played a major role in Operation Husky, the invasion of Sicily. Field Marshal Keitel, chief of the German supreme high command, believed the Allied order of battle was twice its actual from false information fed through British controlled agents. On April 30, 1943 in Operation Mincemeat, a body, purported to be Major William Martin, Royal Marines, was set ashore off Spain from a British submarine. He was carrying dispatches and high-level correspondence suggesting the Allies’ targets were Sardinia and the Balkans. Mincemeat played to a known fear of Hitler of a Balkans invasion. ULTRA of May 12 indicated that the Germans bought the deception. Additionally, Operation Solo was a deception threatening an attack against Norway. Solo played to Hitler’s obsession with Norway known through ULTRA. "Throughout 1943, the Germans kept twelve divisions idle in Norway that would have been far more useful in Italy or the Ukraine.” At Husky D-Day [July 9-10] there were only two German divisions in Sicily in addition to the Italian forces there.” SIGINT and photoreconnaissance were used to plan pre-landing attacks on Luftwaffe bases that disrupted its ability to react.

**Italy**: SIGINT and photo reconnaissance provided good intelligence on German order of battle and defenses before the American landing at Salerno on September 9, 1943, a week after the British Eighth Army landed, largely uncontested, on the boot of Italy at Calabria. Faced with stiff German resistance that stalled the Allied advance, the Allies outflanked the Germans by landing up the coast at Anzio, south of Rome, on January 22, 1944. Battlefield intelligence and an ULTRA intercept revealed Field Marshal Kesselring’s plan for an attack on the US Army struggling to expand the Anzio beachhead, which was frustrated by superior Allied firepower. The February 19, 1944 Allied counterattack caught Kesselring by surprise. On June 4 the Allies entered Rome. ULTRA showed Hitler was reluctant to give up Italian territory despite his generals’ recommendations. However, in “the day-to-day fighting the Army Y-Service [tactical intercepts] yielded even more intelligence than high-grade SIGINT, and it was no doubt more valuable to the operational authorities.”

The Pacific

“By early 1943... naval cryptanalysts had mastered the JN25 system so thoroughly that they were able to decrypt all of its variants almost without interruption for the remainder of the war.”

**US Submarine Warfare**: "Regular reading of the Japanese convoy codes gave American submarines an almost total mastery over the Japanese supply lines..." In June 1943 the US broke the codes of the

154 “Germany had a total of 842 U-boats that saw battle. Of these, the Allies sank 781 and captured two...” US Navy, *Tenth Fleet*. U-boat crews suffered a 70% mortality rate. Roberts, review: 2.
156 Hinsley, *British Intelligence*, 341.
159 Hinsley, *British Intelligence*, 339-47.
162 Andrew, *President’s Eyes Only*, 125.
Japanese Water Transport organization – the Army’s navy.¹⁶⁴,¹⁶⁵ As Army Chief of Staff Marshall reported: “Operations in the Pacific are largely guided by the information we obtain of Japanese deployments. We know their strength in various garrisons, the rations and other stores continuing [sic] available to them, and what is of vast importance, we check their fleet movements and the movements of their convoys. The heavy losses reported from time to time which they sustain by reason of our submarine action largely results from the fact that we have the sailing dates and routes of their convoys and can notify our submarines to lay in wait at the proper point.”¹⁶⁶

Pacific Campaigns. At the end of January 1942 the Navy's SIGINT site at Cavite (Cast) in the Philippines was evacuated to Java and then to Australia where it was reconstituted as Fleet Radio Unit – Melbourne (FRUMEL), a joint US-Australian effort. On August 7, 1942 US Marines land on Guadalcanal and found a buried copy of the newly instituted JN-25 C-9 code and cipher books. It was finally read in November 1942. On April 14, 1943 a decrypt revealed the chief of the Imperial Navy, Admiral Yamamoto, planned to visit Bougainville in the Solomon Islands. Four days later 18 long-range US P-38 fighters shot down his plane.¹⁶⁷

By mid-1943 American naval and air power had forced the Japanese largely onto the defensive. In May, the Alaskan islands were recaptured, as was Tarawa in the Gilbert Islands in the central Pacific. By November US forces had invaded Bougainville in the Solomon Islands, part of the Japanese defensive perimeter for its major base at Rabaul on New Britain. SIGINT tipped off the Navy to a planned Japanese reinforcement of New Guinea. The subsequent Battle of the Bismarck Sea on March 2-4, in which Allied air forces and PT boats sank all eight transports and five escorts, ended Japanese attempts to reinforce Lae, a major port, on New Guinea by sea.

“No cryptologic continuity on Japanese [Army] communications had been built up before Pearl Harbor, principally because of the impossibility of intercepting the existing Japanese military nets either in the home islands or on the mainland of East Asia. It was not until April 1943 that an initial entry was made into one of the principal Japanese Army systems.”¹⁶⁸

General MacArthur, commander of the Southwest Pacific, however, did not embrace SIGINT.¹⁶⁹ His preference was clearly slanted toward visual reconnaissance, including both aerial and coast watcher sources; he seldom passed on SIGINT-related intelligence received from FRUMEL.¹⁷⁰ Nonetheless SIGINT played an important role in his campaigns. A watershed occurred when the Australians captured the entire cryptologic library of the Japanese Twentieth Division in January 1944 at Sio, New Guinea. “From the time of the capture of the Sio material until the end of the war, we read

¹⁶⁴ Ibid., 325.
¹⁶⁵ ONI apparently stole Japanese codes from its consulates in New York City and San Francisco. The record of this is fragmentary, largely based on a June 8, 1942 memorandum from Commander Kramer. Before the war the Navy was admonished not to undertake clandestine operations against Japanese diplomatic facilities by the Army that was fearful of compromising its success against the Purple code. NSA historian Robert Benson concludes the Japanese merchant shipping and the attaché codes were obtained through these means. Robert Louis Benson, A History of US Communications Intelligence during World War II: Policy and Administration, Volume 8, World War II, Series IV, United States Cryptologic History (Center for Cryptologic History, National Security Agency, 1997), 46. “The Flag Officers Code was never solved by the Americans.” NSA, Pearl Harbor Review – JN25. https://www.nsa.gov/about/cryptologic_heritage/center_crypt_history/pearl_harbor_review/jn25.s html.
¹⁶⁶ Marshall to Dewey, September 25, 1944, SRH-043, cited in Andrew, President's Eyes Only, 142-3.
¹⁶⁷ Budiansky, Battle of Wits, 325.
¹⁶⁹ Nor did MacArthur embrace the OSS. “General Douglas MacArthur in the South Pacific and Admiral Chester Nimitz in the Central Pacific saw little use for OSS.” Warner, Office of Strategic Services.
approximately 2,000 messages a day."\textsuperscript{171} SIGINT's greatest contribution to the New Guinea campaign was the discovery of a Japanese convoy carrying reinforcements. In late April and early May 1944, US submarines sank the convoy, causing the Japanese to lose all of the equipment and 4,000 troops frustrating the Japanese plan to reinforce western New Guinea and allowing MacArthur to speed up his western New Guinea offensive.\textsuperscript{172}

Geography of the Pacific helped Allied SIGINT. Isolated on islands, the Japanese had to communicate over the air code change instructions in the old code, which gave Allied cryptographers the instructions at the same time.\textsuperscript{173}

\textbf{China}. US naval intelligence placed personnel in China to provide essential weather information to the Pacific fleet. Under the Sino-American Cooperative Organization (SACO) coast watchers also provided information on Japanese movements and conducted sabotage in conjunction with Nationalist Chinese guerillas.\textsuperscript{174}

Japanese intelligence was "uncoordinated, unsophisticated, and inept." The Imperial General Staff had no intelligence organization. Strategic decisions were made by a committee unaffected by intelligence. There were separate Army and Navy intelligence offices, plus other intelligence related organizations in the Foreign Ministry and Greater East Asia Ministry, which disseminated their reports separately. The Japanese relied heavily on espionage and fifth column reports, although it enjoyed extensive SIGINT success against Chinese codes and limited success against British and US codes. Japanese human intelligence collapsed in the US with the FBI arrests after Pearl Harbor, and the FBI's efforts limited Japanese collection activities in Latin America. The geography of the Pacific with American control of the sea and air "meant in the later stages of the war the Japanese ... were forced to rely on intelligence reports from Berlin and neutral capitals, plus radio traffic analysis and inferences from American sea and air activity."\textsuperscript{175}

\textbf{The Great Deception: “Fortitude” and the Normandy Landings – 1944}

The Normandy landings ("Overlord") were a daring and risky Allied undertaking fully expected by the Nazi defenders. The invasion's success can be attributed to good Allied intelligence and intelligence-enabled deception. "Most secret sources" (i.e., ULTRA intercepts) and "special means" (i.e., controlled enemy agents\textsuperscript{176}) were the two most powerful tools of the trade and were the keys to Allied success with deception.\textsuperscript{177}

\textsuperscript{172} Ibid., vii.
\textsuperscript{173} Ibid., 38.
\textsuperscript{174} The US Navy enjoyed a better relationship with the Chinese than did either the British, who the Chinese suspected of having further colonial ambitions, or the OSS. See Linda Kush, \textit{The Rice Paddy Navy: US Sailors Undercover in China; Espionage and Sabotage Behind Japanese Lines During World War II} (Oxford: Osprey Publishing, 2013, Kindle edition). "At least a dozen American intelligence units operated in China over the course of the war, all of them competing for sources, access, and resources... Tai Li [head of the Nationalist Chinese intelligence service] demanded that American intelligence operations in China be run—wherever possible—by the office of Capt. Milton E. Miles, the commander of [SACO]." "Gen. Claire L. Chennault, creator of the famous 'Flying Tigers' and chief of US air power in China, needed accurate target intelligence. OSS filled his need through an "Air and Ground Forces Resources Technical Staff." Warner, \textit{Office of Strategic Services}.
\textsuperscript{175} Holt, \textit{The Deceivers}, 61, 109-12.
\textsuperscript{176} In June 1943, Tar Robertson, operational chief of the XX program, reached the startling conclusion that every single German agent in Britain was actually under his control. The XX system was, in fact, a weapon. Macintyre, \textit{Double Cross}, 1, 4.
\textsuperscript{177} There had been extensive Allied deception operations in all theaters of the war. In 1942-43 the strategic aim was to keep as many Axis forces as possible away from the Eastern and Mediterranean
In November 1943 the Japanese military attaché in Berlin sent a 32-part report to Tokyo on the Western Wall defenses, which “… gave a detailed account of the numbers and sites of every element in the coastal defense system, from the heaviest coastal battery down to grenade throwers…” Little did the Japanese know they were sharing this detailed intelligence with the Allied invasion planners.

“Fortitude South” was the deception plan for the Normandy landings. Its strategic aim was to disguise the date of attack, exact location, and its nature – to raise in the Germans’ minds whether it was the “real” invasion or a preliminary feint.

SIGINT revealed that the “Germans greatly exaggerated Allied strength in Britain in 1943.” Allied deception planning played to this misperception. Deception planners created the First US Army Group (FUSAG) under General Patton, believed by the Germans to be one of the Allies’ best combat generals, with 150,000 men in southeastern England. A “[h]uge effort went into physical deception, camouflage, and signals traffic, but the Germans were not really paying attention. And why would they? They had numerous spies on the ground providing copious evidence of exactly what was going on.” German aerial reconnaissance over Britain was very limited. Thus much of the visual and SIGINT deception efforts were wasted.

In March 1944 GCCS broke the Fish radio-teletype link between von Rundstedt, commander of German forces in the West, and Berlin. This new source of SIGINT provided high level German plans and intentions and estimates of the invasion threat. “The Allied deception plan that would prove crucial in the success of D-Day owes a great debt to Bletchley Park’s breaking of the German teletype machine.”

On April 20, 1944 a Japanese naval attaché message reported that the Germans expected the invasion would be centered on Boulogne and revealed Rommel’s strategy to defeat the landings on the beach. On May 27, nine days before D-Day, the Baron Hiroshi Ōshima, the Japanese ambassador, lunched with Hitler. On June 1 Ōshima’s intercepted message to Tokyo confirmed that Allied deceptions had led the Germans to overestimate Allied strength and that Hitler believed the major assault would be at the Pas de Calais. Enigma decrypts revealed that “…the Germans did not believe in the few days before D-Day that the landings were imminent, and they remained uncertain of their destination.” Meanwhile Allied SIGINT, photo reconnaissance, and resistance reports fronts. In 1944 the aim was to encourage the Nazis to hold back as many forces as possible to repel a future attack at the Pas de Calais. Holt, The Deceivers, 98.

Hinsley, British Intelligence, 436-7. In the second half of the war the Japanese embassies in Europe were to prove of immense intelligence value because they were repeating back to Tokyo their versions of German assessments and their knowledge of German intentions. The MAGIC intercepts were almost as valuable on some subjects (such as the Normandy Landings) as were the direct ULTRA intercepts from the German horse’s mouth. Hinsley, Cambridge address.

There were other D-Day related deceptions too. Fortitude North was related to a potential invasion of Norway from northern Britain, playing to a known fear of Hitler. Operation Copperhead used a look-alike actor to imitate Field Marshal Montgomery who was paraded before a known German agent in Gibraltar just before D-Day, suggesting an invasion was not imminent. Operation Ironside threatened an attack in the Bordeaux region of southernwestern France from southern Britain and the US. Macintyre, Double Cross, 235.

Holt, The Deceivers, 481

Principal among the deception agents were Brutus (Roman Garby-Czerniawski), a Polish captive, recruited by the Abwehr and sent to Britain who then volunteered to the British, and Garbo (Juon Pujol), who ran a fictional network of sub-agents. Macintyre, Double Cross, 227.

Hinsley, British Intelligence, 439.

Budiansky, Battle of Wits, 315.

Hinsley, British Intelligence, 448, 460.

Macintyre, Double Cross: 309; Hinsley, British Intelligence, 449.
“enabled the Allies to make an all but totally accurate assessment of the German order of battle in the Overlord area on D-Day...” and to cripple heavy defenses.\(^\text{186}\) Appreciating the importance of intelligence, on D-Day the Allies bombed the German’s jammers, knocked out the headquarters of the Luftwaffe’s SIGINT service, and large portions of their radar network.\(^\text{188}\) Bombing and jamming reduced German radar coverage to 5%.\(^\text{189}\) As the Germans had lost their meteorological ships they did not expect landings in such bad weather as there was on June 4/5.\(^\text{190}\) Enigma decrypts and intercepted ship-to-ship tactical communications allowed the Allies to map the German minefields off the beaches “which proved to be of crucial importance for the success of the landings.” Air attacks crippled German mine laying boats.\(^\text{191}\)

While Overlord was a tactical success, the German forces positioned near the Pas de Calais posed an existential threat to the Allied armies in Normandy. Allied deception efforts continued after the Normandy landings emphasizing the mythical threat from Patton’s FUSAG. “German troops could be redeployed from Calais to Normandy in a matter of days: every hour the deception held firm would be measured in thousands of lives saved; if it failed, the butcher’s bill would soar.”\(^\text{192}\)

In early July Japanese diplomatic messages revealed that the Germans still believed Patton’s FUSAG would land at the Pas de Calais with 23 divisions. A Japanese naval mission message of July 7 reported there were 30 divisions in England waiting to land. And a July 10 Japanese ambassadorial message to Tokyo reaffirmed that belief.\(^\text{193}\) The continued deception delayed a massive German reaction for over a month allowing the Allies to greatly build their strength.

Post mortem studies of the D-Day landings “attributed [its] remarkable success...at so little cost in large measure to the excellence of the intelligence on the defences and the topography of the invasion area.”\(^\text{194, 195}\) One failing, however, was not foreseeing the challenge of the countryside’s hedgerows. The Allies’ advance was stalled several days until tanks could be outfitted with plows to break through these obstacles.\(^\text{196}\)

Six weeks after the Normandy landings, on August 15, 1944 the Allied landings (“Dragoon”) in southern France achieved total surprise. OSS agents provided detailed intelligence on troop dispositions, defense, fortifications, and mine fields. The 7th Army G-2, Colonel William Quinn, later

\(^{186}\) Ibid., 450-453.

\(^{187}\) Photoreconnaissance was used extensively to target German batteries. On D-day only 4 batteries were active in the assault area; 21 had been damaged or destroyed. Ibid., 466.

\(^{188}\) R.V. Jones, Most Secret War, 411-2. Knocking out the Luftwaffe’s SIGINT capabilities contributed to the lack of air attacks against the D-Day forces.

\(^{189}\) Hinsley, British Intelligence, 467.

\(^{190}\) Ibid., 468.

\(^{191}\) Ibid., 461-2.

\(^{192}\) “Allied casualty rates averaged 6,674 a day for the seventy-seven days of the Normandy campaign. Those numbers would have been far higher, had it not been for...” the XX operators (Macintyre, Double Cross, 6).

\(^{193}\) Hinsley, British Intelligence, 496, 500.

\(^{194}\) Ibid., 471. This was in sharp contrast to the intelligence of the August 1942 Dieppe raid. The Naval commander ignored warnings based on SIGINT of German ships in the area and many landing craft were caught offshore and the Dieppe defenders were alerted to the landing. Poor topographical intelligence resulted in the Allied tanks being unable to scale the rocky beach. Of the 5,000 raiders involved 70% were killed, wounded, or captured in the debacle. David, Military Blunders, 103, 115.

\(^{195}\) Not to be overlooked were the contributions of the French Resistance and the 93 Jedburgh teams operated by the American OSS and British Special Operations Executive (SOE). Warner, Office of Strategic Services.

\(^{196}\) Observation of General James A. Van Fleet, then a colonel commanding the 8th Infantry Regiment on D-Day, as told to Joseph Goulden. Private email in author’s library.
said "We knew everything... and where every German was. And we clobbered them." The Germans were concerned about a landing at Genoa, Italy, another deception story hatched by the Allies.

The Drive Across France

Trapped between the advancing Allied armies and hounded by the French resistance, aided by joint British SOE-Free French-American OSS Jedburgh teams, the deterioration of the German position in Normandy resulted in much increased Enigma traffic and intercepted tactical communications. By the time of the Third Army’s breakout (Operation Cobra) Patton (no longer the “commander” of the mythical FUSAG in Britain) had become an astute consumer of SIGINT. ULTRA provided extremely accurate order of battle information, often having exact figures down to the man and the gun for German units facing the Third Army. "An army has never moved as fast and as far as the Third Army in its drive across France, and ULTRA was invaluable every mile of the way." Tactical SIGINT was welcomed when it disclosed specific enemy intentions (e.g. a maneuver or attack) in time for commanders to prepare an effective response. It was highly valued if it revealed specific vulnerabilities (e.g., shortages in either fuel or certain ammunition) of enemy units within reach that a commander could then exploit. But by far the bulk of SIGINT that mattered to ground forces consisted of enemy unit identifications and DF fixes. The Jedburgh teams often provided vital topographical and order of battle intelligence to rapidly advancing Allied forces that outran their map and intelligence support.

From SIGINT, the Allies learned that German ground troops were abandoning southern and southwestern France and were returning to defend the Fatherland. ULTRA also revealed German stay-behind agents. Most were captured by OSS X-2 (counterintelligence) and Allied agents and some turned into additional “special means.” But with the collapsing German army strategic deception opportunities dwindled.

Eastern Front

Two weeks after the Normandy landings the Red Army opened a coordinated major offensive in the center of the Eastern front, taking Minsk, and giving the Germans a defeat on the scale of Stalingrad. By mid-July the Soviets launched two more major attacks. By mid-August the Germans abandoned Estonia and Latvia on the Baltic coast. The southern offensive resulted in the collapse of Germany’s allies, Romania and Bulgaria, and by the end of September the Soviets entered Yugoslavia. Budapest was captured in mid-February. Soviet intelligence had improved greatly during the war and contributed to effective deception operations against the Wehrmacht.

197 Waller, Wild Bill Donovan, 265.
199 Hinsley, British Intelligence, 506.
200 It is unclear whether Patton had much knowledge of COMINT or exposure to it during the North African or Sicilian campaigns, but he learned its worth in the drive across Western Europe after the D-Day landings. Based on a contemporary report written by Major Warrack Wallace, “General Patton and COMINT” http://www.nsa.gov/about/cryptologic_heritage/center_crypt_history/almanac/index.shtml#article3.
204 Holt, The Deceivers, 648.
205 The Soviet air forces had expanded their photoreconnaissance capabilities, and Moscow was reading German communications. Zdzislaw J. Kapera. “Summary Report of the State of the Soviet Military Sigint in November 1942 Noticing ENIGMA.” Cryptologia 35, No. 3 (July 2011), 247-56. See also Robert W. Stephan’s Stalin’s Secret War: Soviet Counterintelligence Against the Nazis, 1941-1945.
The Soviets had a large number of GRU and NKVD (Soviet secret service) agents inserted with Tito’s Yugoslav partisans and other teams in Hungary. Tito's partisans fought both the Germans and their Chetnik collaborators.206 Hungarian counterintelligence left the British SOE operations largely alone and cooperated with MI6 against the USSR in later stages of the conflict.207

**FINAL SURPRISES AND ALLIED VICTORY IN EUROPE: 1944 – 1945**

Despite Allied successes German military resistance remained formidable. Hitler hoped for new weapons to reverse the tide of war. And despite overwhelming material resources and insight into German plans and intentions, intelligence failures contributed to costly Allied reverses.

**V-Weapons**

British intelligence received hints of new long range Nazi weapons from the initial Oslo report in 1939. In December 1942 a Danish engineer reported to MI6 that rockets with a 200-kilometer range were being developed at Peenemünde on the Baltic coast. Bugging of two German general officer POWs captured mention of a 200-kilometer rocket program.208 In April 1943, the first photoreconnaissance of Peenemünde in almost a year revealed a "torpedo-line" object. An Enigma decrypt in June referred to winged rockets and London as a target.209 The accumulating intelligence prompted a heavy bomber raid on Peenemünde on the night of August 17/18 that delayed the rocket program up to six months.210 Days later a V-1 winged drone crashed on Sweden's Bornholm Island, and the Swedes provided intelligence about the wreckage to the British. In September, R.V. Jones, the chief of scientific intelligence for the Air Ministry and MI6, warned of the construction of rocket launch sites in Belgium and northern France.211 The first V-1 attacks began a week after the Normandy landings.

Tactical SIGINT gave British air defenses advanced notice of most of the V-1 launches, often 70 minutes before acquisition by radar. The XX Committee employed doubled agents’ reports to deceive the Germans as to the accuracy of the V-1s. With no aerial reconnaissance possible the Germans were reliant on the false agent reports.212

There was very little intelligence on the V-2.213 An Enigma decrypt indicated one test flew over 250 kilometers (160 miles) and impacted in Sidlice, Poland. In June 1944 an errant V-2 fell on Sweden. The Swedes provided the British pieces in exchange for jammers and the results of British analysis. But there ensued a technical debate within the British establishment over the range, warhead, and accuracy of V-2s. Some did not believe such a weapon was possible. Certainly the British had never


206 GCCS SIGINT and reports from the British Special Operations Executive (SOE) teams in Yugoslavia provided the British with details of the partisan infighting. Hinsley, *British Intelligence*, 357.

207 Author’s notes from lecture by Dr. Laszlo Ritter, Hungarian Academy of Sciences, at the Cryptologic History Symposium, Johns Hopkins Applied Physics Laboratory, 2013.


209 One of Allen Dulles’ covert agents in the Abwehr provided confirmation of the V-1 and V-2 programs. Kahn, "Intelligence in World War II," 18.


211 The French Resistance provided much of the intelligence on these sites. *Ibid.*, 364.

212 There was no Luftwaffe aerial reconnaissance of London from January 1941 until September 10, 1944. *Ibid.*, 421-2. In the period of September to December 1944 of the 1,300 V-1s launched only 66 reached London. Air defenses, tipped off by SIGINT and aided by radar, destroyed 60% of those crossing the English Channel. Hinsley, *British Intelligence*, 567-70.


©2015 AFIO, All Rights Reserved 03/18/2015
attempted such a weapon. On September 8, 1944 the first V-2 landed on London. Their launch pads were hard to detect in aerial photos. Radar gave only a few minutes warning.

**Market Garden**

Despite its successes in France, Allied intelligence was fallible. A failure to heed intelligence warnings contributed to the disastrous airborne invasion of the Netherlands in September 1944. Enigma decrypts, Dutch underground reports, and aerial reconnaissance all indicated elements of four German divisions, including two panzer, in the target area of Arnhem. One Enigma message indicated that Germans believed Arnhem to be the Allies’ objective. Field Marshal Montgomery, the British commander, believing that the Germans would not put up a fight dismissed the intelligence. Operation Market Garden, launched on September 17 was a failure. After heavy losses the British and American airborne forces retreated on September 25.

**Battle of the Bulge**

On December 16, 1944, under heavy overcast, the Wehrmacht launched a massive counterattack against the thinly held Allied line in the Ardennes Forest of Belgium and Luxembourg. Preoccupied by its own offensive against the Siegfried Line the Allies were caught by surprise. Ignored intelligence indicators and mistaken judgments, coupled with good German security, resulted in the Allied surprise.

Decrypted Japanese diplomatic messages from Berlin forewarned of a planned German offensive as early as late August. By the end of September, British intelligence was aware of a major German mobilization of up to 60 divisions. SIGINT revealed plans for a major Luftwaffe deployment to the west of close support aircraft. POW interrogations and civilian eyewitness reports indicated forthcoming offensive. In October, the Abwehr and SD changed cipher procedures; their messages were not recovered until December, too late for any warning. Also the Germans practiced strict radio discipline in early December, often an indicator of a coming offensive. But British assessments underestimated German strengths and plans and did not imagine the risks Hitler would take.

Furthermore, Allied euphoria at the collapsing German army reinforced old habits of ignoring intelligence.

By December 19, SIGINT revealed to the Allies that the Wehrmacht was headed for the Meuse River and the port of Antwerp. Allied ground and air counterattacks and German supply difficulties finally

---

215 Of the 1,190 V-2s launched against Britain, 1,054 landed in the country, half on London. Ibid., 459; Hinsley, *British Intelligence*, 571.
216 Ibid., 544.
217 The Market Garden disaster is a case when bias reigned over evidence. The British corps intelligence officer was dismissed after insisting that the intelligence was accurate. David, *Military Blunders*, 117-32.
218 From mid-September the US and Germany were locked in a struggle of attrition in the Hurtgen Forest area south of the German city of Aachen and north of the Ardennes.
222 Recent revelations suggest that Hitler was a heavy user of drugs, including methamphetamines that give a feeling of euphoria but are mentally destructive. How this may have affected his risk-taking in the Battle of the Bulge is open to speculation. Evidence of this is contained in a US Military Intelligence dossier, but the source(s) of the intelligence are not public. *The Independent*, “Hitler was ‘a regular user of crystal meth,’ American Military Intelligence dossier reveals,” October 25, 2014. For a physician’s perspective see also D. Doyle, “Adolf Hitler’s Medical Care.” *Journal of the Royal College of Physicians of Edinburgh*, 35, 75-82.
stalled the offensive. The battle lasted until the end of January 1945.\footnote{The Battle of the Bulge was the biggest and bloodiest battle fought by the US in World War II. 19,000 GIs were killed and 70,000 wounded. Stephen E. Ambrose. \textit{Americans at War} (Oxford, MS: University Press of Mississippi, 1997), 52.} SIGINT was not decisive in the Battle of the Bulge but did give the Allies an advantage.\footnote{Hinsley, \textit{British Intelligence}, 550-66.} Allied attempts at deception, however, were “defeated by the [Allied Military Police] radio net, which...handed the true information to the Germans `on a silver platter.'” German tactical SIGINT was good.\footnote{Holt, \textit{The Deceivers}, 658.}

The results of Hitler's Ardennes offensive were even worse than his generals had feared. Although it had delayed Eisenhower's planned drive into Germany by about six weeks, it had resulted in well over 100,000 German casualties, over 600 ruined armored vehicles and a loss of over 1000 aircraft. German resources had been largely wasted, and that meant that when the Russians and the Western Allies renewed their attacks, both would be able to advance more rapidly. The tying-up of the German reserves in the Ardennes offensive proved a godsend for the Red Army, which opened its winter offensive on the Eastern Front on January 12, 1945, eventually enabling it to reach its principal objective, Berlin, before the Western Allies.\footnote{Franz Kurowski, “Dietrich and Manteuffel,” in Correlli Barnett, editor. \textit{Hitler's Generals} (New York: Grove Weidenfeld, 1989), 432.}

In the final months of the war, OSS recruited “volunteer” agents from Axis POWs and inserted more than 200 into Germany. “[T]he data they collected on industrial and military targets significantly aided the final Allied air and ground assaults on Germany.”\footnote{Warner, \textit{Office of Strategic Services}.} In the spring of 1945, high-ranking German officials began to explore secret peace arrangements. OSS chief in Switzerland, Allen Dulles, brokered the surrender of German forces in Italy in April, saving many lives.\footnote{Ibid.}

In the final weeks of the war “[t]he Allies had obtained good tactical intelligence during these advances from [photo reconnaissance], POW, and especially from Y, the enemy’s VHF links supplying a steady flow of information in plain language.”\footnote{“Y” is operational tactical SIGINT. VHF is very high frequency, referring to tactical radios. Hinsley, \textit{British Intelligence}, 610.} By late April the speed of the Allied advance and overwhelming superiority made operational intelligence largely superfluous.\footnote{Ibid., 611.} Germany surrendered on May 8, 1945.

\textbf{Post Conflict Lingering Concerns}

As the war drew to a close, two topics of great interest prompted formation of separate intelligence task forces. One was ALSOS, the other was TICOM.

The ALSOS mission focused on capturing German scientific and technical knowledge, especially information on German R&D on atomic weapons and biological research. Its ostensible medical mission was to camouflage and divert attention from the primary objective of atomic intelligence.\footnote{From a captive... “we obtained the first substantial picture of German BW activities. It was a totally amateurish profile and allowed us pretty well to exclude any danger from the use of such weapons in the final phase of the conflict. This essentially coincided with the findings of our physicist colleagues concerning nuclear developments.” “An analysis of the assembled documents confirmed our earlier judgment that German interest in BW had been short-lived and amateurish.” Carlo Henze, M.D. “Recollections of a Medical Intelligence Officer in World War II.” \textit{Bulletin of the New York Academy of Medicine}, 49, no. 11 (November 1973), 966, 970-1, 973.}

\footnote{223 The Battle of the Bulge was the biggest and bloodiest battle fought by the US in World War II. 19,000 GIs were killed and 70,000 wounded. Stephen E. Ambrose. \textit{Americans at War} (Oxford, MS: University Press of Mississippi, 1997), 52.} \footnote{224 Hinsley, \textit{British Intelligence}, 550-66.} \footnote{225 Holt, \textit{The Deceivers}, 658.} \footnote{226 Franz Kurowski, “Dietrich and Manteuffel,” in Correlli Barnett, editor. \textit{Hitler's Generals} (New York: Grove Weidenfeld, 1989), 432.} \footnote{227 Warner, \textit{Office of Strategic Services}.} \footnote{228 Ibid.} \footnote{229 “Y” is operational tactical SIGINT. VHF is very high frequency, referring to tactical radios. Hinsley, \textit{British Intelligence}, 610.} \footnote{230 Ibid., 611.}
The technological superiority of German tanks, jet aircraft, and rockets had caused the Allies great concern.\textsuperscript{232} The TICOM (Target Intelligence Committee) mission also included capturing German cryptographic information and equipment. One revelation was the discovery of a hitherto unknown Nazi Party SIGINT unit separate from all others under the control of Goering. Another was a German machine for breaking Soviet codes.\textsuperscript{233}

**VICTORY IN THE PACIFIC**

By late 1944, overwhelming American naval and air power forced the Japanese onto the defensive on most fronts.\textsuperscript{234} SIGINT allowed the Army air forces to exact a high price on Japanese ships and men going to the Philippine island of Leyte. The Battle of Leyte Gulf from October 23 to 26, the largest naval battle in history, which broke the back of the remaining Japanese fleet, assured Allied naval and air superiority in the Pacific. After this, the Japanese had to abandon large garrisons that they could no longer resupply.\textsuperscript{235}

In the Philippines, guerillas controlled almost half of the country and provided MacArthur with much of his intelligence on the Japanese. In December, the main island of Luzon was invaded; fighting continued until the end of the war.

Intelligence proved fallible with the invasion of Iwo Jima in February 19, 1945 when it did not discover a change in Japanese defense strategy. The extensive Japanese tunneling and defense in depth, not at the beach as previously encountered, belied the intelligence estimate that the island would fall within a week. It did finally on March 26.\textsuperscript{236}

On April 1, Okinawa was invaded. The ferocious fighting and kamikaze attacks, which took a heavy toll of an estimated 65,000 Allied killed and wounded, lasted until mid-June.\textsuperscript{237} The level of casualties was to have a significant influence on later Allied strategy toward Japan.

Allied intelligence\textsuperscript{238} enjoyed a significant advantage over Japanese intelligence. Japanese codebreakers were decentralized and fragmented. Although the Japanese could read Chinese military and diplomatic codes, some British weather and merchant codes, and American aircraft movement codes, especially in MacArthur's Southwest Pacific Theater, a post-war Japanese assessment stated:

> Our [Japanese] navy was not able to break the American military's code(s); our intelligence appreciations and strategic estimates were primarily based on communications intelligence which was derived from enemy traffic analysis, call sign identification, direction-finding bearings, and interception of plain language transmissions (particularly those of aviators when

\textsuperscript{232} TICOM Archive: Secret Intelligence in Nazi Germany. \url{http://www.ticomarchive.com/home/origin-of-ticom}


\textsuperscript{234} In June 1944 US Marines captured the islands of Saipan, Guam, and Tinian in the Marianas campaign, which became B-29 bases for the strategic bombing of the Japanese homeland islands.\textsuperscript{235} Maneki, *Quiet Heroes*, 38.

\textsuperscript{236} Jeff M. Moore, "The High Cost of Faulty Intel," *Naval History* (February 2005) \url{http://www.military.com/NewContent/0,13190,NH_0205_Intel-P1_00.html}

\textsuperscript{237} The last major naval engagement took place on April 7, 1945, when tipped by SIGINT, US submarines on reconnaissance patrol spotted ten Japanese warships, including the large battleship Yamato, sailing toward Okinawa. Yamato, one cruiser, and 4 destroyers were sunk by Navy aircraft. William H. Garzke & Robert O. Dulin. *Battleships: Axis and Neutral Battleships in World War II* (Annapolis, Maryland: Naval Institute Press, 1985), 60.

\textsuperscript{238} By this time in the war the US and Australia enjoyed a close SIGINT partnership.
airborne)... only a few of our many intelligence estimates based on communications intelligence really 'hit the mark,' and our navy's confidence in them was, therefore, relatively low.239

B-29 operations became a priority target for Japanese SIGINT, which could exploit open air-to-air communications and do traffic analysis. Japanese SIGINT broke call signs for the B-29s in 1944 and would alert radar stations and interceptor aircraft. In early August 1945, a US intercept revealed that Japanese COMINT was following the unusual operations of the 509th Bomb Group, which was conducting trials for the atomic bomb.240

**Invasion of Japan and the A-Bomb Decision**

The Army and Navy disagreed over the strategy to defeat the Japanese in their home islands. The Navy preferred a strategy of blockade and bombardment to weaken the Japanese military. MacArthur, by this time the overall land and air forces commander in the Pacific, pushed for an amphibious invasion of Kyūshū, the southernmost home island and later attacking Honshū near Tokyo.241 The debate was unsettled when President Roosevelt died on April 12, 1945.

Also being debated at political levels was the meaning of "unconditional surrender" contained in the July 26 Potsdam Declaration. Assistant Secretary of State Joseph C. Grew, the leading Japan expert in the State Department, proposed keeping the Emperor even with unconditional surrender.242 On July 13, while President Truman was en route to the European victors' conference at Potsdam, SIGINT revealed the Japanese had approached Russia to negotiate a peace. But SIGINT also revealed divided opinions of Japanese leaders.243

Previously in May, while fighting still raged on Okinawa, the Joint Chiefs of Staff agreed on Project "Downfall," the invasion of the Japanese home islands. However, SIGINT was providing indications of what invading forces would face. The original estimates were for 246,000 defenders on Kyūshū. Anticipated US casualties were projected at 193,000. As SIGINT accumulated the estimate grew to over 1,100,000 defenders with many kamikaze forces. MacArthur and Army Chief of Staff Marshall differed on the estimates. "MacArthur's practice was to not allow intelligence to interfere with his aims, and his history of complaints about [his intelligence chief] Willoughby's reports resulted mainly from their contradiction of his own estimates and preferred courses of action."244 MacArthur challenged the accuracy of intelligence estimates. In a cable to Marshall, MacArthur stated:

> Throughout the Southwest Pacific Area campaigns, as we have neared an operation, intelligence has invariably pointed to greatly increased enemy forces. Without exception, this buildup has been found to be erroneous.245


240 Author's notes from the 2013 Cryptologic History Symposium.


243 Andrew, *President's Eyes Only*, 152-3; and Frank, *Downfall*, 238.


President Truman's concern with casualties was conditioned by the bloody battle for Okinawa, which continued until late June, in which Japanese civilians as well as the military fought US forces. Kamikaze attacks had taken a heavy toll of Navy ships. Marshall told the president that casualties would probably exceed the official number to be approximately 250,000. That and "[d]ecrypted messages from Tokyo [that] indicated that the Japanese would not surrender even if the Allies launched an all-out land invasion of the country... played a role in... Truman's decision to drop the atomic bomb on the country." On August 6, the first atomic bomb was dropped on Hiroshima. Three days later the second destroyed Nagasaki. On August 14 Japan agreed to unconditional surrender. The last hostilities ended a month later when Japanese forces in Burma surrendered.

CONCLUSIONS

Historian John Keegan has written “[w]ithout our knowledge of Ultra and Magic, it would be impossible to write the war’s history; and, indeed, all history of the war written before 1974, when the Ultra secret was revealed for the first time, is flawed by reason of that gap.” Intelligence played a far more prominent role in World War II than in any previous conflict. It became, after a while, a strategic advantage for the Allies. In 1939, Allied intelligence was ill-prepared for the conflict. German and Japanese intelligence had been active for years preparing for war.

Before the war, US intelligence was fragmented between the War and Navy Departments and the FBI. All were underfunded and engaged in interagency bickering. The Army and the Navy fought over the collection, production, and reporting of SIGINT. The FBI pushed for its own role and carved out Latin America as its own sphere. All opposed the creation of the Office of Strategic Services, and the Army and Navy denied OSS access to SIGINT. Each had independent agreements with the British regarding intelligence exchange and cooperation.

The British were the senior partners in Allied intelligence activities, especially their application to deception efforts against the Nazis. Suspicion of the Americans, especially concerning security, evaporated slowly. “London insisted that the Americans imitate British security practices to protect the vital ULTRA secret from unauthorized disclosures.” “This British caution kept the Americans in the awkward status of junior partners for much of the war, particularly during the planning for covert action in support of the D-Day landings in Normandy in 1944.”

SIGINT was the most important source for strategic intelligence. Historian David Kahn notes “...codebreaking...with its associated sorceries, such as direction-finding and traffic analysis, was by far the most important source of intelligence in World War II for both sides.” “[A]ll the intelligence the OSS produced never matched the value of the Ultra electronic intercepts in Europe and Magic in the Pacific.” In the early years many Allied commanders were not knowledgeable or trusting of SIGINT, which led to many disasters, e.g., the fall of Crete, surprise in the Philippines even after learning of the attack on Pearl Harbor, and the destruction of convoy PQ-17. Bias often overruled intelligence as evidenced by the surprise over the invasion of Norway; the loss of Royal Navy capital

246 Approximately 50 US and Canadian ships were sunk by kamikaze attacks. Denis Warner and Peggy Warner. The Sacred Warriors: Japan's Suicide Legions (Aarhus, DK: Van Nostrand Reinhold, 1982).
247 Sulick, Spying in America, 162.
248 August 15 in Japan.
249 Keegan, Intelligence in War, 322.
250 “The Joint Chiefs of Staff cut OSS off from cryptologic intelligence during World War II as part of an effort to derail the fledgling organization.” Author’s name redacted, “CIA-NSA Partnership: A Brave New World [Redacted],” Declassified “Secret//X1” article from Studies in Intelligence (2010).
251 Warner, Office of Strategic Services.
252 Kahn, "Intelligence in World War II", 7.
253 Waller, Wild Bill Donovan, 389.
ships to Japanese aircraft off Malaya; the unexpected German forces refitting at Arnhem, the Market Garden objective; and MacArthur's persistent disagreements with intelligence assessments, especially regarding the invasion of the Japanese home islands.

ULTRA – Enigma & Fish -- and JN-25 and MAGIC were “the best intelligence available to British and American commanders.” Then CIA historian Michael Warner wrote “[w]ithout ULTRA and MAGIC, the war might have been lost.”254 British historian F. H. Hinsley opined that “we wouldn't in fact have been able to do the Normandy Landings... until at the earliest 1946, probably a bit later. It would have then taken much longer to break through in France... And altogether therefore the war would have been something like two years longer, perhaps three years longer, possibly four years longer than it was.255 SIGINT proved vital in specific battles for both the Axis, e.g., in North Africa and the Atlantic, and the Allies, e.g., the Atlantic U-boat campaign and at Midway.

Ironically, MAGIC (the decryption of Japanese diplomatic and attaché codes) were very important in understanding Nazi thinking as Ambassador Baron Hiroshi Ōshima reported in detail to Tokyo on his discussions with Hitler and others. Chief of Staff General Marshall stated that Japanese messages from Berlin were “our main basis of information regarding Hitler's intentions in Europe.”256

As valuable as strategic SIGINT was, operational or tactical SIGINT was most important for combat commanders who also relied on more traditional intelligence sources – reconnaissance patrols, POW interrogations, and captured documents and equipment, especially cryptologic materials. The capture of Rommel's SIGINT unit in North Africa had strategic significance thereafter denying him his advantage. Captured radar components from downed aircraft and the Bruneval raid helped the British scientists develop effective countermeasures to Luftwaffe bombing of Britain.

Photoreconnaissance, born in World War I, became vital for the air war and identifying strategic targets, especially German war industries and oil production. By mid-war it had become an intelligence discipline of its own. The British were the pioneers in knitting together the various elements of intelligence (SIGINT, human sources, POW interrogations, reconnaissance, radar, etc.) for the purpose of supporting operations.257

Counterintelligence and subsequent double agent operations proved critical for deceptions. Much of this also depended on ULTRA decrypts. The surprise of the Normandy landings is perhaps the greatest wartime deception in history. Certainly, it was one of the most complex deception operations ever.

“Germany lost the intelligence war,” historian David Kahn notes. “At every one of the strategic turning points of World War II, her intelligence failed. It underestimated Russia, it blacked out before the North African invasion, awaited the Sicily landing in the Balkans, and fell for thinking the Normandy landing a feint.”258 German intelligence was “disorganized and unregimented” with various elements competing. Intelligence “…findings streamed together only in the mind of Adolf Hitler.” 259 The greatest failing may have been in strategic analysis, which should have illuminated to the Germans the fact that it alone could not compete against the combined economic and potential military strengths of the Allies.260

The Japanese were not heavily invested in intelligence, which played a subordinate role in strategic decisions. Japanese policy makers and war planners were not interested in intelligence. Operations planners thought their judgments were superior to the intelligence departments in the Navy and

254 Warner, Office of Strategic Services. Most historians would qualify this statement, preferring a judgment that the war would have lasted longer.
255 Hinsley, Cambridge address.
256 Kahn, “Intelligence in World War II,” 12.
258 Kahn, Hitler's Spies, 539.
259 Ibid., 42.
260 Ibid., 526.
Army. Japanese intelligence, which was “overwhelmingly military,” focused almost exclusively on collecting short-term operational intelligence. Like Germany, Japanese strategic intelligence failed. Japanese leaders “engaged in ‘best case’ analysis” concerning their enemies, especially the recuperative powers and industrial might of the US.” Any intelligence findings which indicated that America would fight back could not be accepted by the policy-makers in Tokyo. Nor would they examine evidence that the economic disparity between the United States and the Japanese Empire was so great that their defeat was certain.

Historian Ernest May has noted that “…intelligence estimates are useful only if acceptable to the people who have to act on them.” In many cases both Axis and Allied decision makers and commanders ignored or rejected intelligence. May also noted that “…widely accepted presumptions [before and during the war] were often quite wrong” and resistant to being even questioned” even in the face of intelligence.

Allied success in World War II is often credited to American industrial might. At the 1943 Teheran conference Stalin toasted “To American production, without which this war would have been lost.” But the enormous manpower sacrifice of the USSR and British fortitude were other crucial factors. These were aided by extraordinary Allied intelligence. As historian Thaddeus Holt concludes “The Western Allies in the Second World War beat their enemies by valor in full measure. But that valor was aided by guile on a level never before seen; the most systematic and skillful deception ever practiced in warfare.” And it was Allied intelligence that enabled that guile. “What effect did intelligence have on the war? It cannot be said to have won it. The war was won by the greater material and human forces of the Allies and by the bravery and spirit of the men and women in combat and in support. But intelligence shortened the war. Thus it contributed to victory. It saved lives – on both sides.”

By the end of the war, Britain and the US had built an intelligence behemoth. SIGINT cooperation continued almost without interruption after hostilities. Cooperation in other intelligence disciplines was rapidly renewed after the descending of the Iron Curtain and the passage in the US of the National Security Act in 1947 but with a different focus – the Soviet Union, a former but temporary ally.

The major intelligence legacy of the war for the US was a commitment not to be so surprised by an adversary nation again, hence the establishment of a Central Intelligence Agency and creation of the “Five Eyes” SIGINT community of the US, the United Kingdom, Canada, Australia, and New Zealand.

**Readings for Instructors**

Much remains unknown about intelligence activities during World War II. While many of the wartime documents of the British and Americans have been declassified, those of the Soviet Union largely have not. Many Japanese records were destroyed at the end of the war before they could be secured and preserved. Many topics, even large theaters of operations (e.g., China-Burma-India and Latin America), have been omitted in this article due to space and time limitations. Instructors will profit greatly from the intelligence bibliography at [http://intellit.muskingum.edu/maintoc.html](http://intellit.muskingum.edu/maintoc.html). The

---

269 Kahn, “Intelligence in World War II,” 20.
footnotes contain many useful references. Recommended below are books that give a broad
overview of intelligence during World War II.

- **Andrew, Christopher.** *For the President’s Eyes Only: Secret Intelligence and the American
Roosevelt: The Path to Pearl Harbor, Chapter 4 – Roosevelt at War (1941 – 1945), and Chapter 5

- **Budiansky, Stephen.** *Battle of Wits: The Complete Story of Codebreaking in World War II.* New
York: The Free Press, 2000. Budiansky provides a comprehensive explanation of what Axis and
Allied codes and ciphers were broken. The technical explanations of the cryptanalytic processes
are understandable by the layman. Most significantly, the author explains the consequences of
the cryptanalytic efforts and how they affected battles and Allied strategies from Cape Matapan,
Midway, El Alamein, the Atlantic, through and after the Normandy Invasion.

- **Collier, Basil.** *Hidden Weapons: Allied Secret or Undercover Services in World War II.* Barnsley:
Pen & Sword Books Ltd., 1982. Collier is one of the officially accredited British World War II
historians. Knowledgeable of ULTRA from his experience as intelligence officer in the
headquarters of RAF Fighter Command, he offers a comprehensive view of the “use and
misuse,”270 failings and successes of Allied intelligence in Europe and the Far East throughout
World War II. While Collier does not go into great detail in all aspects of intelligence his overview
is a good introduction to the topics and guide for further readings.

- **Hinsley, F. H.** *British Intelligence in the Second World War* (Abridged Edition). London: HMSO,
1993. Hinsley was the official historian for MI6. The original official history is in six volumes,
appropriate for research scholars but overwhelming for others. The abridged edition at over 600
pages is still quite detailed.

- **Holt, Thaddeus.** *The Deceivers: Allied Military Deception in the Second World War.* New York:
Scribner, 2004. Holt details the expanding efforts at deception throughout the war. He provides
excellent appendices and a list of relevant abbreviations.

1979, 2009. This is a classic discussion of scientific intelligence and its contributions to the Allied
war effort.

- **Kahn, David.** *Hitler’s Spies: German Military Intelligence in World War II.* New York: Macmillan

- --- “Intelligence in World War II,” *Journal of Intelligence History,* vol. 1, no. 1 (Summer 2001).

- **Keegan, John.** *Intelligence in War: Knowledge of the Enemy from Napoleon to Al-Qaeda.* New York:

- **Kotani, Ken.** *Japanese Intelligence in World War II.* Oxford, UK: Osprey Publishing, 2009. This is
one of the few sources in English on this topic.

- **May, Ernest R.** (editor), *Knowing One’s Enemies: Intelligence Assessment Before the Two World
intelligence and the failings on all sides.

- **MacEachin, Douglas J.** *The Final Months of the War with Japan: Signals Intelligence, US Invasion
Planning, and the A-Bomb Decision.* Washington, DC: Central Intelligence Agency, Center for the
Study of Intelligence, 1998. https://www.cia.gov/library/center-for-the-study-of-
intelligence/csi-publications/books-and-monographs/the-final-months-of-the-war-with-japan-
This is an excellent examination of the SIGINT that influenced the atom bomb decision.

- **Macintyre, Ben.** *Double Cross: The True Story of the D-Day Spies.* New York: Crown Publishers,
2012. Also his *Operation Mincemeat: How a Dead Man and a Bizarre Plan Fooled the Nazis and
Assured an Allied Victory.* New York: Crown, 2011, a deception operation made famous by the
1956 movie *The Man Who Never Was.*

- **Masterman, J.C.** *The Double-Cross System: The Incredible Story of How Nazi Spies Were Turned into

---

270 R. V. Jones in Foreword: vii.


• Wohlstetter, Roberta. *Pearl Harbor: Warning and Decision*. Stanford: Stanford University Press, 1962. This is a classic study of why the US was surprised at Pearl Harbor. However, other historians argue with her conclusions.

Many useful research materials are available over the Internet. CIA’s Center for the Study of Intelligence ([https://www.cia.gov/library/center-for-the-study-of-intelligence/](https://www.cia.gov/library/center-for-the-study-of-intelligence/)) contains many monographs, *Studies in Intelligence* articles, and declassified documents providing rich detail on many relevant aspects of World War II intelligence. NSA’s Center for Cryptologic History ([https://www.nsa.gov/about/cryptologic_heritage/center_crypt_history/index.shtml](https://www.nsa.gov/about/cryptologic_heritage/center_crypt_history/index.shtml)) also contains many useful articles and volumes related to World War II SIGINT.

**Author and Acknowledgement**

Peter C. Oleson is the editor of AFIO’s *Guide to the Study of Intelligence*, a member of the board of the Association of Former Intelligence Officers, and chairman of its academic outreach. Previously he was the director for intelligence and space policy for the Secretary of Defense and assistant director for plans and policy of the Defense Intelligence Agency. He was founder and CEO of Potomac Strategies & Analysis, Inc., a consulting firm on technology and intelligence and an associate professor in the graduate school of the University of Maryland University College.

The author wishes to acknowledge the recommendations and assistance he has received from Emeritus Professor Douglas Wheeler of the University of New Hampshire, the contributor of several articles to the *Guide*. Thanks also to Dr. Robert Clark, Joe Goulden, Michael Sulick, Robert MacDonald and Hayden Peake for their critiques of the draft and helpful recommendations.