The Battle of Coral Sea: The Importance of Military Intelligence in the Pacific Theater

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"It was in the Battle of the Coral Sea that signals intelligence came of age, demonstrating its capacity to predict the enemy's intentions will in advance and with remarkable accuracy". Craig Collie, 2017.

Figure 1: Purple Code System

The Pacific Theater in World War II presents dozens of battles both on land and sea that can be studied to identify tactics and lessons to be learned. One such battle is that of Coral Sea, the first aircraft carrier battle that was the pre-courser to the Battle of Midway. The Battle of Coral Sea is still one

that can be shown as an example of how sea-based aircraft should be used in war, but the battle is also a prime example for how intelligence can impact a war effort and how multinational coalitions with both military equipment and intelligence sharing are necessary for war in the 21st century. Coral Sea was one of many battles that identified how Signals Intelligence (SIGINT) could be used during war time which assisted in the creation of the NSA in 1947. Yet during the war the predecessor for SIGINT was Radio Intelligence (RADINT) which would impact the entire theater drastically in conjunction with the use of airborne reconnaissance. The use of RADINT and airborne assets to conduct reconnaissance missions would be two of the most important new combination of capabilities in the Battle of Coral Sea.

Overview of Coral Sea

Coral Sea as a battle requires multiple stages in order to understand the full picture. Before the aircraft carriers even met there are significant actions that took place that provide lessons to be learned outside of the main engagement. The first of these includes what happened before the aircraft carriers were even at Coral Sea, namely what did the intelligence provide. Before the battle at Coral Sea the Japanese were using two primary encryption codes that the United States named "Purple" (the successor to "Red") and the more complicated of the codes JN25. All of these codes the United States was able to break allowing for almost immediate decryption of Japanese troop movements, political intent, military intent and the movement of military officials. By breaking JN25 the United States and the allied nations became aware of the intent for the Japanese to send a naval force in the southern Pacific.[i] Admiral Nimitz the Commander in Chief of the Pacific Fleet sent additional ground-based surveillance and reconnaissance aircraft as well as two aircraft carriers, the *USS Lexington* and the *USS Yorktown.* The intelligence that was provided gave indications and warnings of Japanese offensive intent in a timely manner allowing pre-positioning of forces. This is a key example of how intelligence used at the right time can permit the use of assets at the right place.

Figure 2: JN-25 Code Page

      The original plan for the Japanese was to take control of Port Moresby so that supply lines between the U.S. and Australia could be cut and for Japanese troops to be positioned here to support future offensive action against Samoa and New Caledonia. During the first phases of the Japanese plan of action aircraft were needed to support Rabaul, and Tulagi needed to be secured. On 2 May the main Japanese carrier force sent fighter aircraft to Rabaul but due to weather this was delayed until 4 May delaying the main force two days. During this delay Tulagi was secured on 3 May, the *USS Yorktown* was alerted already of the attack on Tulagi and sent a raid resulting in one destroyer and three minesweepers sunk, one destroyer and one minesweeper damaged to include 87 men killed.[ii] The *USS Yorktown* after the raid returns to meet the *USS Lexington,* while the main Japanese force arrives around Tulagi unable to counter the U.S. attack. On 7 May the U.S. carrier group and the Japanese carrier group both launch air raids on false targets. The U.S. spots the Japanese light carrier the *HIJMS Shoho* south of Misima Island and sinks it. While the Japanese report the U.S. carrier group but instead find the *USS Sims* and the *USS Neosho* a destroyer and oiler that are attacked with the *USS Sims* being sunk and the *USS Neosho* badly damaged having to return for repairs.[iii] Then on 8 May the main Japanese and U.S. carrier forces battle using aircraft only, being the first aircraft carrier battle. Almost simultaneously the U.S. launches 75 planes while the Japanese launch 69 planes.[iv] After the engagements the result stands at the *HIJMS Shokaku* having to leave due to damages and the *HIJMS Zuikaku* having to follow, effectively taking two of the six Japanese carriers out of play for the upcoming battle at Midway. Additionally, the Japanese throughout the battle lost the *HIJMS Kikuzuki,* three auxiliary vessels, 77 planes, 90 aircrew and 1,074 men.[v]

For the allies during the battle the *USS Lexington* was sunk in addition to the *USS Sims* and *USS Neosho*.[vi] As for aircraft the U.S. also lost 66 aircraft, 35 aircrew and a total of 543 men during the battle.[vii] When totaled by tonnage the Japanese come out of this engagement victorious, but in the strategic realm the removal of two aircraft carriers from the Japanese fleet at Midway was a large victory for the allies.

When considering the battle's tactics and the information from both sides we now know, two intelligence aspects stand out, these being airborne reconnaissance and SIGINT. In addition to the bombers, fighter aircraft, and aircraft carriers, key support to the Allies came from the intelligence that was collected. Would the battle even have occurred if not for the decrypted signals in the joint effort between the United States, British and Australian signal corps? Additionally, would the Japanese had the upper hand if they started to use sea-based air reconnaissance earlier to detect the U.S. task force? These questions we may never truly answer but the impacts of the airborne intelligence and SIGINT are clear.

Airborne Reconnaissance

Aside from the dive bombers, fighters and torpedo bombers used during the offensive stages of Coral Sea, airborne reconnaissance aircraft played a significant part in the battle as well. Without reconnaissance aircraft both the allies and the Japanese would have relied on radar which at the time was not a robust and reliable system, or by relying on counter-attacks based on where the enemy aircraft came from. The importance of reconnaissance aircraft was understood by both sides by the importance was better understood by the U.S. since reconnaissance aircraft were used either by land based or sea-based take-off and landing. This is unlike the Japanese that relied on land-based reconnaissance aircraft. This critical difference in tactics significantly assisted the ally's sine land-based aircraft were restricted by a definite range before having to return for fuel, while sea-based aircraft had shorter range but were extended by the landing strip being out in the sea.

The lesson is clear to the observer that reconnaissance aircraft are critical when trying to identify the location of the enemy, but truly this lesson is highlighted more in the present day since aircraft Intelligence, Surveillance and Reconnaissance (ISR) capabilities are more robust then during Coral Sea. Tactical ISR aircraft that are launched from aircraft carriers today are now more important than ever since indications and warnings to protect the fleet including support vessels, carriers, destroyers and amphibious vessels is the top priority. That being said the combination of the Japanese and allied tactics is how in the 21st Century a campaign needs to run, the joint use of land based and sea based ISR from the Philippines, Australia, New Zealand and the surrounding islands

provides overlapping reconnaissance coverage. This is necessary to maintain maritime surface and sub-surface surveillance so that the element of surprise is null and void.

The U.S. and Australian Signals Intelligence

Figure 3: Type B Cipher Machine

Signals Intelligence in the 21st Century is now one of the most complicated ways of collecting and countering the collection of data. Although, the Battle of Coral Sea is an example for how at the time RADINT the predecessor of SIGINT can drastically impact the battlefield. Without the decryption of the JN25, Red and Purple codes used by the Japanese who knows what could have happened to Port Moresby and the southern Pacific during the war. Yet, the decryption was made possible by the U.S. Signals Intelligence Service (SIS), British decryption out of Bletchley Park, the Australian Signal Corps and New Zealand Signal Corps. Between the four nations the Special Intelligence Bureau was created to share the intercepted Japanese messages that each country was collecting.[viii] The difference with the Japanese codes compared to the German codes was that Enigma the German cipher machine was used to encrypt codes. The Japanese instead for their JN-25 code it included an encrypted codebook for diplomatic messages.[ix] The codes were then additionally re-encrypted a second time with another code book with the second set of codes using 'false' numbers so that the receiving member would have to use a correlating additive table to reveal the underlying codes message.[x] Cryptologists and mathematicians from each country joined with military organizations to break the JN25 code after the Red and Purple codes had already been broken. This amount of assistance was necessary since with the double encryption, without the additive aid, the code breakers would have to break the first cipher then the messages themselves.[xi] Although at first initial efforts to break the code were unsuccessful decrypting operational messages the U.S. and the British were able to keep track of Japanese navy allowing them to monitor the order of battle in the theater.[xii] Later in the effort to break the JN25 code other messages were able to be decrypted

indicating the Japanese intent to spread its empire to the south-east of the Pacific, this allowing the allies to build up additional forces to combat the Japanese expansion.[xiii] As there was an increase in radio traffic, the Australian and U.S. Navy SIS was able to identify "numerous indications which point to an impending offensive from Rabaul base".[xiv] This intelligence was enough for the U.S. to then place additional assets in the south Pacific which we know now as what turned up to be the battle at Coral Sea. The combined effort between the four nations is the lesson in itself that not only SIGINT but shared intelligence between the nations is critical in order to affect the war effort; "It was in the Battle of the Coral Sea that signals intelligence came of age, demonstrating its capacity to predict the enemy's intentions will in advance and with remarkable accuracy".[xv]

Applications for the 21st Century Pacific Theater

To apply the Battle of Coral Sea to the Indo-Pacific region in the 21st century one of the most critical lessons is that the United States and their allies must maintain multi-dimensional intelligence collection capabilities. In World War II collection capabilities relied on RADINT and reconnaissance aircraft flights but now the United States and the other allied countries have significant upgrades in technology, but the lesson stands true. For the 21st century upgrading and maintaining a robust SIGINT network that can be shared between the allied countries will allow for indications and warnings of potential Chinese or other actors intentions. To compliment this a stress on space-based collection capabilities namely satellites is a field that has been forgotten but is one of the most significant players in the theater. Having a dominant presence in space is what will ensure that the United States has intelligence collection capabilities in their "back pocket" that many other countries in the world do not have. Lastly, placing sufficient airborne ISR aircraft in the theater will allow for an overlap and extension of collection capabilities. Aircraft such as the MQ-9, U-2, RQ-4, RC-135 and many more robust collection capabilities need to be massed around the high interest area in order to best support war planning, and provide additional intelligence collection to inform military leaders and policy makers.

Signals Intelligence also impact today in that the United States has a vast amount of military power but, without SIGINT and information sharing data between New Zealand, Australia, Japan, South Korea, the United Kingdom, and the Philippines serious consequences may ensue. It is crucial to share information since all of these nations have a part to play in a conflict against the primary aggressor in the area of operation, China. Like before the Battle of Coral Sea the nations working together to break the Japanese codes, having overlapping, and robust SIGINT collection networks in the theater and sharing the information may provide Chinese intent, military actions and potential expansion or planning in the area.

Not only does the United States and its allies need ISR but ensuring a presence of overlapping and sophisticated defensive systems will ensure the survival of the forces already in the theater. One of the more significant tactics during the Battle of Coral Sea that the United States used was having the aircraft carriers close enough to the other destroyers and support ships that all anti-aircraft guns could support the effort. This same principle is needed in a new age conflict of having counter ballistic missile systems, anti-aircraft systems, anti-submarine, and counter-surface warfare capabilities. Employing these types of overlapping defenses will increase the number of remaining forces if a surprise attack or devastating blow from advanced technology occurs at the start of a major conflict. Furthering this effort, the burden does not only need to rely on the U.S. military but using multi-nation partnerships and defenses will also assist in large conflict in the Indo-Pacific.

Conclusion

Overall, the Battle of Coral Sea as the first aircraft carrier battle in history holds many stories to be told, and each one of them providing an essential lesson that fundamentally can impact warfare today. Studying the tactics conducted by the United States and the Japanese during the battle and applying them today can assist in the war planning and shaping the mentality that is required for large scale conflict in the largest geographic theater on the planet. Such lessons like using and maintaining a robust SIGINT network, defensive network and a combined multi-national partnership may not prevent a war, but if a conflict were to arise the allied powers would be significantly more prepared by learning from previous engagements in the theater.

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[iv] Stille, *The Coral Sea 1942,* pg 10.

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[xi] Collie, *Code Breakers,* pg 117.

[xii] Smith, pg 84.

[xiii] Smith, pg 88.

[xiv] Collie, *Code Breakers,* pg 120.

[xv] Collie, *Code Breakers,* pg 133.