THE BATTLE FOR INTELLIGENCE: HOW A NEW UNDERSTANDING OF INTELLIGENCE ILLUMINATES VICTORY AND DEFEAT IN WORLD WAR II

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Master of Arts
in Security Studies

By

Edward J. Piotrowicz III, B.A.

Washington, DC
April 15, 2011

THE BATTLE FOR INTELLIGENCE:
HOW A NEW UNDERSTANDING OF INTELLIGENCE
ILLUMINATES VICTORY AND DEFEAT IN WORLD WAR II

Edward J. Piotrowicz III, B.A.

Thesis Advisor: Jennifer E. Sims, PhD.

ABSTRACT

Does intelligence make a difference in war? Two World War II battles provide testing grounds for answering this question. Allied intelligence predicted enemy attacks at both Midway and Crete with uncanny accuracy, but the first battle ended in an Allied victory, while the second finished with crushing defeat. A new theory of intelligence called "Decision Advantage,"[a] illuminates how the success of intelligence helped facilitate victory at Midway and how its dysfunction contributed to the defeat at Crete. This view stands in contrast to that of some military and intelligence scholars who argue that intelligence has little impact on battle. This paper uses the battles of Midway and Crete to test the power of Sims's theory of intelligence. By the theory's standards, intelligence in the case of victory outperformed intelligence in the case of defeat, suggesting these cases uphold the explanatory power of the theory. Further research, however, could enhance the theory's prescriptive power.

[a] This theory, developed by Dr. Jennifer E. Sims of Georgetown University, also has system or "third image" implications that Sims refers to as "Adaptive Realism". See Jennifer E. Sims, "Defending Adaptive Realism: Intelligence Theory Comes of Age," in Peter Gill (ed.), *Intelligence Theory: Key Questions and Debates* (New York, NY: Routledge, 2009).

To my beautiful wife, who edited this dissertation while she was busy growing a child.

E. J. Piotrowicz III
ALEXANDRIA, VA

TABLE OF CONTENTS

INTRODUCTION

In one of the earliest endorsements of intelligence for battle, Sun Tzu said: "What enables the wise sovereign and the good general to strike and conquer, and achieve things beyond the reach of ordinary men, is foreknowledge."[2] No one would question Sun Tzu's importance in the history of strategic thought, but not all agree with his exaltation of intelligence. Centuries later, Carl von Clausewitz put it bluntly: "In short, most intelligence is false."[3] The debate over the importance of intelligence spans generations, but the wars of the twenty-first century sparked a new round of arguments: many contend that intelligence is the key to victory over terrorists and insurgencies. Combating this view, military historian John Keegan holds that the most important factor in winning is military strength: "in combat willpower always counts for more than foreknowledge."[4] The debate holds important implications for the application of intelligence. If Keegan is right about the limited utility of intelligence in war, the massive resources governments invest in intelligence could be more effectively directed elsewhere. A theory developed by Jennifer Sims of Georgetown University, however, suggests that thinkers on both sides of the argument make one fundamental flaw: they do not understand what intelligence *is*.

Sims would posit that intelligence, properly understood, can and does have an impact on the outcome of combat. Yet, Keegan's and Clausewitz's understanding of intelligence is too narrow. So, what is intelligence? Sims defines intelligence as "the collection, analysis and

---

[2] Sun Tzu, *The Art of War*, trans. Lionel Giles (El Paso, TX: El Paso Norte Press, 2005), 65.

[3] Carl Von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1984), 117.

[4] John Keegan, *Intelligence in War: Knowledge of the Enemy from Napoleon to al*-Qaeda (New York, NY: Alfred A. Knopf, 2003), 25.

dissemination of information on behalf of decision-makers engaged in a competitive enterprise." As Sims argues, this definition suggests that "success is achieved less by finding 'truth' or perfect accuracy, than by gaining better information for one's own side than is available to the opponent at crucial moments in the competition."[5] Knowing the merits of one's own intelligence service relative to the competition, however, is often impossible, especially in the heat of a contest where intense competition leads to high levels of secrecy between the competitors. Thus, Sims has developed a theory to optimize intelligence without knowledge of the other side's capabilities.

Sims's theory suggests that an intelligence service, optimized across her four categories of performance, should be able to deliver a decisive advantage to one side in battle. This hypothesis counters Keegan's argument, which he has presented in several case studies designed to show that intelligence has a negligible impact during war. To test which scholar is correct, I will apply Sims's theory to two of Keegan's cases: the World War II battles of Crete and Midway.

THE DEBATE AND THE THEORY

Sims's theory of intelligence prescribes[6] what is necessary for an intelligence service to provide decision advantage through the optimization of four functions: collection, anticipation,

[5] Jennifer E. Sims, "Defending Adaptive Realism: Intelligence Theory Comes of Age," in Peter Gill (ed.), *Intelligence Theory: Key Questions and Debates* (New York, NY: Routledge, 2009), 154.

[6] Sims's theory is the first "prescriptive" theory of intelligence. Prior to her theory, a descriptive model known as the "intelligence cycle" often served as an aid to newcomers and scholars in understanding how the US intelligence community functioned. For a discussion of this model, its advantages, and limits, see Mark M. Lowenthal, *Intelligence: From Secrets to Policy* (Washington, D.C.: Congressional Quarterly Press, 2003), 41-53.

transmission, and counterintelligence. I hypothesize that Sims's theory can explain why events unfolded differently in the case of victory at Midway but in defeat at Crete, even when the defenders in both cases possessed extremely accurate information regarding enemy plans and intentions. In this way, I aim to do more than weigh in as one more pro-intelligence advocate: I want to illustrate what intelligence must do to help achieve victory, and show why it sometimes fails to do so.

This approach differs from much of the scholarship that has followed Keegan's 2003 book. On one side are the pro-military scholars who, like Clausewitz, are skeptical of the reliability of intelligence and argue that military force is the "decisive" factor in war. Another scholar in this camp is longtime intelligence historian David Kahn. Kahn adopts Keegan's understanding of intelligence as accurate foreknowledge, referring to a military commanders' traditional distrust of "the tools of prediction—dreams, omens, entrails, the mutterings of oracles."[7] Kahn argues that operational commanders before World War I seldom trusted intelligence, relying on strength instead. Intelligence only provided reliably useful information to war fighters after the advent of radio and army general staffs provided a target on which information could be collected. Even so, Kahn argues, the best intelligence is worthless without adequate levels of force to act on it. Kahn's point is obviously true, but he says little about what is necessary in order for a decision-maker to take advantage of information when it is reliable.

[7] David Kahn, "The Rise of Intelligence," *Foreign Affairs* Vol. 85, No. 5 (New York, NY: September/October 2006), 125.

Kahn abandons reliable intelligence to the fate of Cassandra—blessed with the gift of accurate prediction, but cursed so that none would believe her.[8]

On the other side of the debate are pro-intelligence scholars who point to examples of how accurate knowledge of the enemy allowed a weaker force to triumph over a stronger one. In this camp is Gregory Elder of the Defense Intelligence Agency, who lists several examples of this phenomenon, concluding that "[h]istory has repeatedly demonstrated that inferior forces can win when leaders are armed with accurate intelligence."[9] Elder even considers Midway and specifically rebuts Keegan's analysis that intelligence was not a decisive factor. At the same time, Elder does not consider troubling counterexamples to the pro-intelligence thesis such as the Battle of Crete, where Allied defenders possessed accurate knowledge of the enemy, but still managed to lose.

Without a new framework, this debate likely will grind on without revealing anything useful for professionals or scholars on either side; pro-military and pro-intelligence advocates—perhaps motivated by a bureaucratic competition for resources—will continue to hurl examples and counterexamples indefinitely. Sims's theory provides the tools to subsume the debate, because it can explain both the examples and the counterexamples. Sims would undoubtedly fall in the "pro-intelligence" camp, in the sense that her theory holds that intelligence can be a force multiplier, but her theory does more than assume that the possession of accurate information

[8] In Homer's *Iliad*, Cassandra warned the Trojans not to let the wooden horse into the city walls. The Trojans did not heed Cassandra's warnings, however, because she had been cursed by a god for resisting his advances. In terms of Sims's theory, Cassandra faced a "transmission" problem: the decision-maker did not trust Cassandra's intelligence despite its reliability.

[9] Gregory Elder, "Intelligence in War: It Can Be Decisive," *Studies in Intelligence* (Vol 50, No. 2, 15 April 2007); accessed 8 April 2011 at https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/vol50no2/html_files/Intelligence_War_2.htm.

leads to victory. Instead, the theory explains what is necessary for intelligence to be decisive. The theory itself entails the idea that intelligence can be decisive in war, because competitive advantage is the very essence of intelligence. If the theory holds, therefore, one must accept that intelligence has a significant impact on war.

The elegance of the concept, however, does not prove the truth of the theory. A good theory is falsifiable. Because the debate over the impact of intelligence on war rests on the explanatory power of Sims's theory, it is critical to search for data that may prove the theory wrong. The criterion, then, for theory failure is better intelligence in the case of defeat than in the case of victory. That is, if Allied intelligence at Crete should be shown to out-perform Allied intelligence at Midway in the theory's four categories, Sims's theory would not hold. Such data would suggest that the theory is wrong, or, at the very least, that the categories for optimizing decision advantage need reconsideration. Further, uncovering such data would suggest that intelligence, even understood in Sims's broader sense, had only a negligible impact on the outcome of these battles. If the vanquished in one battle possessed better intelligence than the victor in another, there is little reason to think that intelligence made any difference at all. Thus, as I outline the four variables of the theory below, I will also explain how to measure those variables in the cases of Crete and Midway.

Collection. The first component of intelligence, collection, refers to how an intelligence service gathers data. A service can receive data through an array of platforms and sensors that receive information about the intelligence target, what Sims calls "sensing."[10] A service's ability

[10] While not essential to this study, Sims's theory of collection makes a useful distinction between a platform and a sensor. A sensor receives data and a platform carries the sensor to where it can receive data. One example of a sensor could be a US airman trained to visually spot and identify Japanese aircraft. This airman could be based on

to collect can be measured by three broad criteria: the number of collection systems, the range of those systems, and the integration and control of those systems.[11] Number and range indicate how much information can be sensed about an enemy.[12] Integration and control refer to how the sensors complement each other and how they are directed. In order for a collection system to deliver decision advantage, its manager must have authority to direct it against the target given the competition at hand.[13]

Number and range of sensors in the battles of both Midway and Crete were adequate, as will be clear, but it was integration that made a critical difference. I plan to measure integration by asking two questions: did those responsible for decisions during the battle have authority to direct the collection systems (vertical integration)? Next, how many additional collection systems were added based on the initial anticipation of each battle (horizontal integration)? As

---

several different platforms: a Navy base, ship, or airplane. Other sensors include camera lenses, antennae, or satellite dishes. Other platforms include satellites, embassies, and cover companies. This framework applies equally well to human intelligence as well as signals intelligence, or any other "INT" category used to broadly categorize different intelligence collection specializations. An intelligence service often makes tradeoffs based on the costs and benefits of different sensor/platform combinations.

[11] Jennifer Sims, "A Theory of Intelligence and International Politics," in Gregory F. Treverton and Wilhelm Agrell, Eds., *National Intelligence Systems: Current Research and Future Prospects* (New York, NY: Cambridge University Press, 2009), 68.

[12] Sims, "Defending Adaptive Realism: Intelligence Theory Comes of Age," in Peter Gill, et al., Eds., *Intelligence Theory: Key Questions and Debates* (New York, NY: Routledge, 2009), 154: "…the more collection systems deployed, and the wider their operating range, the better intelligence is likely to be against any given target. This judgment is intuitively sensible, but it rests on the assumption that the other three functions [transmission, anticipation, and counterintelligence] stay constant, of course."

[13] Sims, "A Theory of Intelligence and International Politics," 69: Sims cites the 1950s example of RB-45 surveillance aircraft that deliberately flew in range of Soviet radar sensors to collect the location of those radar emplacements. This tradeoff—risking the safety of the collection platform to achieve a collection mission—required "vertical" integration that gave the collection manager authority to take the calculated risk. "If control during those missions had been divided between the owners of the sensors and the owners of the planes placed at risk, the missions might never have flown."

to the first question, a high level of vertical integration is present when those making decisions about the battle also have authority to direct collection resources. A review of the historical record should be adequate to show who had the authority to direct the collection systems. As to horizontal integration, it is easy to measure in both cases, because both battles were preceded by warning of attack. This allows me to quantify what colleciton platforms and sensors were deployed in preparation for the impending competition.

Transmission. The level of trust between an intelligence service and a decision-maker can be referred to as "transmission." Transmission is arguably the most difficult variable to measure, because it involves quantifying the intangible value of trust between the intelligence professional and the decision-maker. Trust goes both ways: an intelligence service has the ability to hide or disclose critical details of its sources and methods from the decision-makers it supports; conversely, a decision-maker has the ability to hide or disclose the decisions it faces from an intelligence service. When both sides increase self-disclosure, each has a greater understanding of the needs of the other. This understanding helps an intelligence service ensure its decision-maker has realistic expectation of what intelligence can provide, while better enabling the service to support its decisionmaker. I plan to measure the level of "transmission" in my case studies by examining the specificity with which the intelligence collector disclosed his sources to the decision-maker, and the specificity with which the operational commander disclosed the decisions he faced to the intelligence service.[14] While it is hard to measure the actual level of trust between an intelligence service and its decision-makers, it is reasonable to

[14] This is an elaboration of Sims's theory that I believe helps to operationalize her approach. Sims has discussed trust in terms of oversight and proximity, which are not always applicable or appropriate to measuring trust in battles.

conclude that this self-disclosure, critical to building and maintaining that trust, is a good measure of its presence or absence.

Anticipation. The traditional understanding of intelligence as accurate knowledge of enemy intentions is one aspect of "anticipation." More broadly, anticipation refers to an intelligence service's ability to warn decision-makers about impending competitions. Measuring this variable is straightforward: anticipation was present at both Midway and Crete because the Allies accurately predicted the imminent competitions and warned accordingly.

Counterintelligence. In Sims's theory, counterintelligence refers to a service's "capacity for creating weaknesses in an opponent's information while protecting your own."[15] As the definition suggests, there are two types of counterintelligence: defensive and offensive. Defensive counterintelligence keeps potentially harmful information out of enemy hands and includes such measures as walls, locks, encryption, and "need-to-know" rules about who can see what information. Offensive counterintelligence in its broadest sense means "messing" with an enemy's mind.[16] This often involves deception: if you can trick the enemy into thinking a certain way, he may act in a way that is beneficial to your side.[17] The key capability necessary for both types is a capacity for deciding which secrets are critical to keep and which ones can be sacrificed for a greater advantage, known as "selective secrecy."

[15] Sims, "Defending Adaptive Realism," 157.

[16] Ibid.

[17] More recently, Sims has referred to the fourth dimension of intelligence as "denial and deception" instead of "counterintelligence." She discusses the latter as any effort to degrade the collection, transmission, anticipation, denial and deception capabilities of adversaries (e.g. disrupting trusted relationships or separating sensors from platforms). See "Twenty-First Century Counterintelligence: The Theoretical Basis for Reform," in Jennifer E. Sims and Burton Gerber, eds., Vaults Mirrors and Masks: Rediscovering US Counterintelligence (Washington, DC: Georgetown University Press) 2009, 19-50. For the purposes of this thesis, however, I will refer to denial and deception as "counterintelligence."

One insight of the theory is that counterintelligence is not an end in itself: it should only be conducted in support of the the other three functions and in the greater context of the competition. For example, an intelligence service should sometimes sacrifice secrecy (a defensive counterintelligence function) to gain transmission by disclosing the details of a source to a decision-maker. It is reasonable to conclude that the presence of both offensive and defensive counterintelligence measures suggests the counterintelligence is conducted as a means to the end of winning the competition, rather than as a good in itself.[18] I therefore plan to measure counterintelligence at Crete and Midway by asking whether both offensive and defensive measures were employed.

Limits of the Study

Contrasting Allied intelligence in two battles is not the best way to test Sims's theory. Ideally, one would measure the performance of intelligence in one side against the other in a single contest. The side with the best intelligence would, if Sims is correct, have the best optimization across her four categories. Unfortunately, available information on Japanese and German intelligence during the war is sparser than that on Allied intelligence, so a robust comparison of each side's intelligence is not possible in this study.

[18] For example, the Allied attempt to convince Hitler the D-Day invasion would occur at Calais rather than Normandy required a mix of both defensive and offensive counterintelligence measures, known as the "Double Cross System." Pulling off such a feat involved both protecting the secret of the true invasion from the Germans (defensive) as well as efforts to seed the Germans information through reliable channels suggesting that Calais was the invasion point (offensive). The offensive portion often required revealing true details of Allied operations to the Germans through double agents. For a good summary of the Double Cross System, see Stephen Budiansky, "The Art of the DOUBLE CROSS," *World War II* (Leesburg: May 2009), 38-47.

The contrasting cases of Midway and Crete nonetheless offer a worthwhile laboratory to test the impact of intelligence for several reasons. First, the cases have enough in common that comparing them can help isolate the impact of intelligence. They both are stories of Allied defenders repelling an attacking force. In both cases, the defenders had advanced warning of the attack and nearly complete predictive intelligence on the how, when, and where of the attack. Yet, the defenders in the Battle of Midway prevailed, while the defenders in the Battle of Crete failed. Second, they are clear and limited examples of competition. Each case has a beginning and end, retrospectively clear decision points and decision-makers, and a decided outcome. This avoids any periodicity problems that might occur with larger case studies. The limited nature of the examples also avoids distracting sub-questions about who "won" or "lost" each scenario.[19] Because of the nature of the war, each side's interests were directly incompatible, making it easy to tell who came out on top. Third, the timeframe of each case is roughly equivalent. Both are World War II battles; thus, the strategic context in both cases was the same: the players involved had access to equivalent communication and weapon technology. This equivalency provides a framework for a narrowly tailored comparative case study. Finally, the historic nature of the cases provides ample data to analyze. Secrecy often hinders the study of intelligence, but the

[19] For the purposes of limiting this study to the impact of intelligence, I will consider the Allies the "losers" of the Battle of Crete. It is possible, however, to argue that the defenders of Crete scored a "victory" in the overall war, despite the loss of the island itself. Former Bletchley analyst Ralph Bennet argues that the forewarning provided to the defenders of Crete allowed them to inflict massive casualties on the Germans, making it a Pyrrhic victory for the Nazis; see Ralph Bennet, *Ultra and Mediterranean Strategy* (New York, NY: William Morrow and Co., 1989), 51. Historian George Kiriakopoulos argues that the strong defense at Crete delayed the German invasion of Russia until June 1941, a delay that famously kept the Germans from reaching Stalingrad until a severe Russian winter took hold, forcing the Nazis to retreat; see George Kiriakopoulos, *Ten Days to Destiny* (New York, NY: Franklin Watts, 1985), 5-7. Assessing the strategic impact of Crete, however, goes beyond the scope of this study.

secret that the Allies could decrypt German and Japanese communications has long been known, allowing for a complete study.

Comparing the Battles: Transmission Wins (and Loses) the Day

Transmission made the difference between victory and defeat at Crete and Midway, based on the case studies that follow. Both battles were anticipated with accuracy, but confidence in the intelligence at Midway resolved the US Navy's dilemma and allowed it to adequately meet the Japanese attack, while the British commander's lack of confidence at Crete kept him from allocating the right amount of force against the German attackers. The study also underscores how the four functions of intelligence are interconnected: counterintelligence as well as the vertical integration of collection impacted the transmission in both battles, and the poor transmission undermined reasonably high-performing horizontal integration at Crete. I first examine anticipation as a roughly equal variable between both battles. I then consider how transmission at Midway outperformed that at Crete. Finally, I compare counterintelligence and collection at Midway and Crete, and consider the impact on transmission of counterintelligence and the integration of collection.

Anticipation

Intelligence analysts were able to piece together enough enemy radio traffic to determine enemy intentions and anticipate the enemy attack well before the battles of Midway and Crete. While perfect accuracy was not present in the intelligence provided to military leaders, the messages were sufficient to warn decision-makers of the imminent competition. The first warning to the British that Germany was preparing an attack was the movement of over fifty troop transport

aircraft to Romania and south Bulgaria in early April 1941, suggesting an attack against Cyprus or Crete, although the target was unclear.[20] Intercepts revealed the target as Crete by 25 April, when German General Suessman ordered surveillance of Crete. Over the next two weeks, Ultra decrypts revealed the timing, targets, and strength of the German attack, culminating in OL 2/302,[21] the main decrypt that summarized German plans against Crete. Bletchley Park[22] sent this estimate to Freyberg on 14 May 1941, nearly a week before the attack commenced on 20 May. According to Keegan, OL 2/302 was "one of the most complete pieces of timely intelligence ever to fall into the hands of an enemy."[23] Intelligence at Crete, therefore, had anticipated the impending competition, the enemy strength, and the means of the attack.

There is some controversy over whether Bletchley analysts led Commander Freyberg to believe that the main German attack would come from the sea. Indeed, this forms part of Keegan's analysis that intelligence did not help the defenders of Crete: "Much has been made of his [Freyberg's] over-concern at the threat from the sea. Nothing is said of the quality of Ultra

[20] Bennet, *Ultra and Mediterranean Strategy,* 51. The transport aircraft were Ju-52s.

[21] Antony Beevor, *Crete: The Battle and the Resistance* (Boulder, CA: Westview Press, 1994), 349: "In this early stage of Ultra, signals were sent to Cairo in the OL or Orange Leonard series with three digits. The OL 2000 series was sent simultaneously or up to several hours afterwards to Crete. Cairo thus knew what had been sent to Crete—the OL 5000 series was for Malta. This system was intended to prevent the onward dispatch of unnecessary information which might risk compromising Ultra if intercepted or captured. Messages sent to Creforce were usually prefixed 'Personal for General Freyberg—Most Immediate'. Captain Sandover, the officer in the cave above the Creforce quarry, would decode the message, show it to Freyberg, and then burn it."

[22] Bletchley Park was a mansion in the small village of Bletchley, England, which housed those working on the German Enigma code throughout the war.

[23] Keegan, *Intelligence in War*, 169.

intelligence supplied to him."[24] The estimate, however, listed Maleme air field as one of the main objectives of the German attack.[25] While there was a seaborne contingent to the German plan, intelligence revealed that about two thirds of the German troops were to be transported by air,[26] suggesting that the initial attack on Crete was anticipated to the level of specificity needed to mount a defense of Crete's airfields.

The Japanese attack on Midway was first anticipated in early May 1942, when decoded messages indicated the Japanese were planning a naval operation against an American target, although that target was not yet known. Indications of the attack on Midway were filtering into the radio traffic as early as March, but those gave no more detail than that the Japanese were planning some type of naval operation.[27] By 2 May, the US Navy's Combat Intelligence Unit (CIU) at Pearl Harbor under Captain Joseph Rochefort had pieced together enough of the Japanese decrypts to suggest an attack that involved most of the Imperial Japanese fleet.[28] Even

[24] Keegan, 181. This point undercuts Keegan's own thesis. To argue that it was the poor quality of intelligence that directed Freyberg to make poor decisions is to suggest that intelligence made a decisive impact in the battle at Crete, even if negative. If intelligence lost Crete, it also could have won it. As we shall see, Sims's theory helps diagnose that intelligence failed at Crete because of poor transmission.

[25] Beevor, 94.

[26] Bennet, *Ultra and Mediterranean Strategy*, 55-58. "The total force to be employed would be between 30,000 and 35,000 men in roughly equal proportions of parachute, glider, and seaborne contingents." Ralph Bennet, himself a Bletchley analyst, argues that Freyberg could not dismiss a major seaborne attack, because every successful island invasion in the history of warfare had been executed as an amphibious attack. Freyberg's dismissal of the Ultra intelligence, as we shall see, was due to a problem of transmission, not anticipation.

[27] For a helpful timeline of when decrypted Japanese messages became available to US decision-makers, see Ariel Levite, *Intelligence and Strategic Surprise* (New York, NY: Columbia University Press, 1987), 104-108.

[28] Based in Pearl Harbor, the Combat Intelligence Unit (CIU) was mainly responsible for decrypting and analyzing Japanese radio transmissions. CIU was also known at various times as "HYPO" and "Fleet Radio Unit Pacific (FRUPAC)." Kahn, 7: "Finally, in June 1941, Rochefort took over the command of what was then known as the Radio Unit of the 14th Naval District in Hawaii. To disguise its functions he renamed it the Combat Intelligence Unit. His mission was to find out, through communications intelligence, as much as possible about the dispositions

within the encryption, the potential target was only referred to as "AF."[29] Rochefort understood that "AF" meant Midway, based on previous decrypts using the designator to refer to the area near Midway. In Rochefort's mind, "the only place worth taking around there was Midway itself."[30] Many remained unconvinced, however, including Admiral Chester Nimitz, the commander of the US Pacific Fleet, and Admiral King, the Navy's overall commander-in-chief. Nevertheless, the collection and decryption of Japanese traffic allowed Rochefort to provide anticipation to American operational commanders. It would take something more before they would believe him.

Transmission

Transmission at Midway outperformed transmission at Crete, according to the metric of self-disclosure between intelligence and decision-makers. Effective transmission was not achieved automatically at Midway, however. Rochefort's analysts at CIU faced major obstacles to good transmission. One was the simple turnover of personnel. Signals intelligence at the time was a specialized and close-knit discipline, and the officers involved knew the commanders who used signals intelligence. As prospects for war with Japan grew, so did the layers of command within the US Navy, and fewer and fewer cryptanalysts had relationships with decision-makers. The same was true in reverse: the cryptanalytic units were themselves shrouded in secrecy. "They

---

and operations of the Japanese Navy. To this end he was to cryptanalyze all minor and one of the two major Japanese naval cryptosystems."

[29] Walter Lord, *Incredible Victory* (Hertfordshire, U.K.: Wordsworth Editions Ltd., 2000), 20-21.

[30] Lord, 21: "The Japanese had indeed mentioned AF. Those seaplanes had refueled from a submarine at French Frigate Shoals, a tiny atoll lying toward Midway, and one of the messages spoke of passing near AF. For Rochefort, that settled it. …From now on, his estimates began stressing Midway as the probable target."

had to be, of course," explains Walter Lord in his definitive history of Midway, "but that didn't make it any easier to sell their wares to the bright new faces at COMINCH."[31]

A second obstacle to transmission at Midway was the longstanding military doctrine that decisions should be made based on enemy capabilities, not enemy intentions. This doctrinal approach was taught in both Army[32] and Navy[33] service academies, and dictated that defense plans should assume the "worst case scenario." While this entrenched doctrine did not necessarily hamper the flow of information between intelligence and US military commanders, it made it very difficult for US military planners to take action based on estimates of what targets the Japanese *intended* to attack. General Delos Emmons, the local Army commander in Hawaii, referred to this doctrine when he sent Rochefort a letter in mid-May, outlining his skepticism, and arguing it was safer to plan based on capabilities.[34]

The biggest challenge to transmission at Midway, however, was the cryptanalysts' failure to predict the Japanese attack on Pearl Harbor. Rochefort, who had headed CIU since June 1941, and continued to do so following the attack on Pearl Harbor in December, worked under the shadow of what many called an intelligence failure. It was not just Rochefort who was in question, however, but the "very validity of signal intelligence…Top echelons of the armed

[31] Ibid.

[32] Levite, 122.

[33] Lord, 28.

[34] Lord, 25.

services were filled, moreover, with senior officers who still looked on the mysteries of decoding like a Doubting Thomas for whom the old ways were best."[35]

Intelligence also faced obstacles to transmission at Crete, most notably that the source of the intelligence was hidden from Freyberg. There is some controversy in the historiography over whether General Freyberg knew the actual source of Ultra intelligence, and because the key metric for transmission is disclosure of sources and methods, a short digression into this debate is necessary.[36] The General's son Paul Freyberg, for example, argues that Field Marshall Archibald Wavell, the theater level commander in Cairo, had explained to Freyberg exactly what Ultra was. According to the younger Freyberg's narrative, the General did not reinforce Maleme air field, because he wanted to protect the source of Ultra. Aside from Paul Freyberg's motive to defend his father's reputation, there is another problem with this explanation: the intelligence decrypts themselves were deliberately paraphrased to represent a different source. According to Group Captain Humphreys, the author of OL 2/302, the most complete estimate of German forces attacking Crete, the intelligence was disguised as a "compendium of German documents obtained through Secret Service channels from German GHQ in Athens, the summary being couched in terms consistent with such an alibi. This was then signaled to Crete."[37] It is clear,

[35] Lewin, 90.

[36] Historians like Antony Beevor and Paul Freyburg argue over the particulars of what Freyberg knew when and what he believed to be the source of the information he received. These debates probably occur because Crete was lost and historians are occupied with who should be assigned blame. My purpose in reconsidering this narrative is to measure the level of transmission of intelligence, rather than decide where to place the "fault" of the loss.

[37] Humphreys as quoted in Ralph Bennet, *Intelligence Investigations: How Ultra Changed History* (Portland, OR: Frank Cass), 197. Beevor further argues that Paul Freyberg's account is unconvincing. That General Freyberg "was deeply shocked to discover the true nature of the airborne threat on 7 May, but could not move any troops to reinforce Maleme airfield in case this betrayed the secret of Ultra—is hard to accept, if only because General

therefore, that Freyberg was unaware of the source of the information provided. He may have been aware of Ultra in the abstract, but the information on enemy intentions vis-à-vis Crete had been disguised as a separate source. Transmission at Crete, therefore, was wanting, when measured from the point of view of the intelligence service disclosing its sources and methods to the decision-maker himself. This matter is important because sources vary in reliability; whereas Allied espionage had brought mixed results at best, Ultra decrypts were credible because the Allies knew that the Nazis believed their communications to be secure.

Another obstacle to transmission was Bletchley analysts' relative lack of understanding of the decisions faced by Freyberg as he prepared to defend the island. Intelligence analysts at Hut 3 knew little of the sorts of questions that General Freyberg, responsible for the island's defense, might be asking.[38] Former Bletchley Hut 3[39] analyst Ralph Bennet provides helpful atmospherics: As of April 1941, a month before the battle, "Hut 3 lacked experience (most of us had been in uniform only a few weeks, and were totally ignorant of military ways and military

---

Freyberg's letter to Wavell on 13 May and his subsequent behaviour contradict it. His continuing preoccupation with invasion from the sea, his calamitous misreading of what turned out to be the most important signal of the battle, and his relative lack of interest in Maleme until the morning of 22 May (two days after the invasion, by which time the Germans had captured the airfield and landed reinforcements) do not suggest a man who had recognized the enemy's intention, yet found himself frustrated by security precautions" (Beevor, 91).

[38] Keegan's summary is more biting. He says the intelligence on Crete was provided to Freyberg by "young, inexperienced and largely unmilitary officers in Bletchley's Hut 3, who seem to have been more concerned to provide a smooth narrative on the Oxbridge essay pattern—most were academic linguists—than the sharp assessment of enemy aims and capabilities that a hardened operational intelligence analyst would have composed" (Keegan, 182-183).

[39] Each "hut" at Bletchley Park had a different job. Hut 6, for example, was responsible for the actual collection and decryption of many of the Enigma signals, while Hut 3 translated and analyzed the decrypts. For a personal account of Hut 6, see Stuart Milner Barry, "Hut 6: Early Days" in F.H. Hinsley and Alan Stripp Eds., *Codebreakers: The Inside Story of Bletchley Park* (London, U.K.: Oxford University Press, 1993), 89-99; for an overview of the Bletchley Park estate, see Bob Watson, "How the Bletchley Park Buildings Took Shape" in Hinsley and Stripp, 306-310.

vocabulary)."[40] Freyberg's main concern was with a German amphibious landing on Crete. Hut 3 analysts had no way of telling what Freyberg's dilemma was, however, and the ambiguity in some of the signals over whether the attack force would be mainly seaborne reflects that lack of knowledge. The information was there for Bletchley to decrypt, but unaware of the imminent decisions Freyberg needed to make or his entrenched idea, the analysts did not properly emphasize the meaning of the signals.[41] Further, there was no mechanism for transmitting such questions from Freyberg, if he had wanted to ask them, back to Bletchley Park. Freyberg's only human interaction with the intelligence concerning Crete consisted of receiving signals from a representative on Crete, Captain Micky Sandford, who decoded the messages, showed them to Freyberg, and subsequently burned them.[42] In Sims's theory, this lack of "connectedness" from analyst to user is a sign of poor collection management as well as poor transmission. In this way, collection capabilities and transmission capabilities are linked.

[40] Bennet, *Intelligence Investigations*, 196.

[41] Beevor argues that Freyberg confused the two sentences in OL 15/389 on 21 May, which indicated the Germans would attack from the air, but might reinforce with a small sea contingent if weather were favorable. (Beevor, 157) While it is impossible to know whether Freyberg confused or misunderstood the intelligence, it is clear that he had no way to ask Bletchley for clarification. The intelligence analysts could have resolved his questions about where the attack would come from, but they had no way of knowing what those questions were.

[42] Keegan refers to this man as "Captain Sandover," based on an apparent error on page 349 (an appendix) in Beevor's history. In the actual text, Beevor refers to this officer as Captain Micky Sandford, "the Australian intelligence officer who decoded each Ultra signal, showing the message to Freyberg and then destroying it." (Beevor, 161) There was a "Sandover" at Crete: Major Ray L. Sandover, an Australian battalion commander stationed East of Rethymno airfield (see Beevor, 131-132). Sandover's men decisively repelled the German attack on Rethymno, and Sandover even took the German parachute regiment commander captive (Keegan, 174).

Counterintelligence.

It is clear, then, that intelligence began with major transmission problems in the cases of both Crete and Midway. While the intelligence at Midway overcame these transmission problems through offensive counterintelligence, transmission problems at Crete remained unresolved and kept Freyberg from acting on the intelligence he possessed. How did intelligence at Midway overcome its transmission problems? It began with Rochefort building a good baseline of trust with Admiral Nimitz and those above him, because he successfully predicted the Japanese attack on Port Moresby,[43] part of an estimate requested by Admiral King.[44] This estimate was a small victory for Rochefort, because it began to overcome the bias against intelligence following Pearl Harbor; it was not enough, however, to make top Naval brass accept Rochefort's Midway estimate.

By 8 May, Rochefort was confident that Midway was the main target of the Japanese attack. Admiral Nimitz's intelligence officer Lieutenant Commander Edwin Layton shared this assessment, but Nimitz was suspicious and commanders in Washington, including Admiral King, were even more skeptical. In their minds, the equation of "AF" with Midway in Japanese communications was "based on no more than a rather elaborate series of inferences and shrewd guesses."[45] On 10 May, Rochefort suggested through Layton to Nimitz that Midway send a false distress signal that complained of a broken desalinization plant. Layton and Nimitz agreed and a

[43] Mark Healy, *Midway 1942: Turning Point in the Pacific* (Westport, Connecticut: Praeger, 2004), 16.

[44] Ronald Lewin, *The American Magic: Codes, Ciphers and the Defeat of Japan* (New York, NY: Farrar, Straus, Giroux, 1982), 91-92.

[45] Levite, 110.

short while later, the Japanese signaled that "AF" was low on fresh water.[46] The false distress signal can be considered a form of offensive counterintelligence: Rochefort confused enemy sensors in order to provide clarity to his own. This minor deception of Japanese perceptions also required a defensive counterintelligence component. Pearl Harbor and Midway were connected by an underwater cable link. This was a physical line, safe from Japanese radio interceptors. This safe communications link allowed Pearl Harbor to securely instruct Midway, which sent its deceptive message over radio channels that the Japanese could intercept.[47]

Over-secrecy nearly subverted transmission at Midway, because most of the consumers of the signals intelligence, known as "Magic," were not aware of the true source. Despite this, Rochefort and CIU were able to overcome the obstacle through offensive counterintelligence.[48] Defensive counterintelligence, however, hindered the decision advantage of Rear Admiral Robert A. Theobald in one confrontation of the battle. Theobald was commanding a force of cruisers protecting the US flank from the Japanese feint against the Aleutian Islands. CIU had predicted that the Japanese would bomb, but not invade, the Dutch Harbor. Theobald was

[46] Lord, 23.

[47] Keegan, 203.

[48] Levite, 124. In his comparison of the warnings before Midway and Pearl Harbor, Levite argues that the "intimacy" of the policymakers with the sources prevented the warning from going unheeded at Midway. "The available data clearly suggests, for at least some of the key American participants, a *strong correlation* between the degree of their familiarity with the source of information (and the process by which it was produced) and the level of their confidence in the intelligence warning." The contrast between the cases of Midway and Crete further bolsters this correlation. Levite's analysis, however, excludes the important counterintelligence piece that confirmed the target of the Japanese attack. In addition to the policymakers' familiarity with the sources, this move directly addressed an ongoing debate in Washington, overcoming what could have become a debilitating bureaucratic battle.

skeptical of this scenario, because he was not aware that CIU had broken the Japanese code,[49] and believed the estimate was based on less reliable "traffic analysis."[50] Theobald lost decision advantage because he was not aware that the content of the messages, as well as the traffic analysis, was available, and thus did not believe the estimate. Theobald positioned his forces to repel an amphibious assault. Instead of invading, Japanese planes bombed the harbor and escaped unharmed after inflicting substantial damage.[51]

Counterintelligence measures at the battle of Crete hampered transmission. As we have already seen, Freyberg did not know the true source of the intelligence at Crete due to a policy of over-secrecy. Bennet recalls that since the rules for sharing information were still under development and new information on Crete came so quickly, there was little time to come to sensible security considerations. In his words, "everyone concerned in the production of Ultra was suddenly compelled to run before he had learned to walk."[52] Bennet's recollection suggests that defensive counterintelligence measures posed a bigger challenge to the impact of intelligence than the accuracy of the information itself.

[49] Specifically, US Navy cryptanalysts had succeeded in breaking the code designated as "JN25b," the encryption used for about half of Japanese naval communications (see Kahn, 562).

[50] Traffic analysis is the art of predicting an enemy's intentions based on which ships are communicating with one another. Traffic analysis can be wrong when the content of the messages is not known, and the Japanese had fooled analysts before with fake bursts of communication between ships (Kahn, 571).

[51] Kahn, 571.

[52] Bennet, *Intelligence Investigations*, 196.

Collection

Good collection was a pre-requisite for the accurate anticipation that preceded both Midway and Crete. This accuracy was due to the adequate number and range of intelligence sensors that were able to intercept German and Japanese communications. It was better vertical integration of the collection systems at Midway that allowed for the transmission that led to victory, while poor vertical integration at Crete hampered transmission. Horizontal integration was relatively equal between both Midway and Crete, but good horizontal integration did not help Freyberg at Crete, because poor transmission hampered his understanding of the additional information collected during the battle.

Number and Range. Allied intelligence in the battles of Midway and Crete performed equally well in terms of the number and range of sensors employed. In the case of Midway, the sensors needed to collect Japanese radio traffic had been built years before. The US Navy in 1937 implemented the Mid-Pacific Strategic Direction-Finder Net. This collection system consisted of a series of sensitive antennae, which "curved in a gigantic arc from Cavite in the Philippines through Guam, Samoa, Midway, and Hawaii to Dutch Harbor, Alaska."[53]

Information about the German operation against Crete was received through sensors based in England, which was close enough to base antennae that could collect German signals. A listening station in Chatham, on the southeastern coast of England, picked up many of the

[53] David Kahn, *The Codebreakers: The Story of Secret Writing* (New York, NY: Scribner, 1996), 7. In Sims's framework, the islands were the platforms, and the antennae were the sensors.

messages decrypted by Bletchley to reveal German military plans.[54] The decrypts were a particularly reliable source of information from which to gauge enemy intentions, because most of the German air force plans were made over the radio, communications the Germans believed were entirely secure through Enigma encryption. The range of Bletchley's collectors, then, was great enough to provide a relatively complete picture of enemy intentions without relying on other types of sensors. Additionally, the fact that the US Navy's CIU and Bletchley Park only had enough manpower to decrypt and analyze a small percentage of the signals collected suggests that the sensors were more than adequate in both number and range.[55]

Vertical Integration. Vertical integration at Midway outperformed that at Crete, and was critical to overcoming intelligence transmission obstacles, but lack of vertical integration harmed transmission at Crete. At Midway, those ultimately responsible for making theater-level military decisions were also responsible for directing the intelligence infrastructure. This integration not only facilitated interaction between decision-makers and intelligence leaders, it also gave Rochefort, based at Pearl Harbor, insight through Layton and Nimitz into the ongoing policy debate in Washington. Further, Rochefort's counterintelligence coup would not have been possible unless Nimitz had possessed the authority to execute it. The idea originated with Rochefort, but was implemented under the authority of Nimitz.[56]

---

[54] Gordon Welchman, *The Hut Six Story* (New York, NY: McGraw-Hill Book Company, 1982), 35-38; Welchman, a Hut 6 cryptanalyst, explains how the material from Chatham gave Welchman, a decryption analyst at Hut 6, insight into the entire German communications network for air and ground forces.

[55] Lord, 21: Only 15% of the Japanese transmissions collected were decrypted and analyzed. Bennet, *Intelligence Investigations*, 195: "Ultra was never more than a random selection of the enemy's correspondence; it included most of what he put on the air, but no more."

[56] Lord, 23.

Unlike at Midway, vertical integration performed poorly at Crete. Contrasting the relationship between Nimitz and Rochefort at Midway and that of Freyberg and Sandford at Crete illustrates Midway's superior vertical integration. While Nimitz actually had authority over Rochefort to direct collection, Sandford was merely a messenger. Intelligence analysts at Midway took steps to increase the confidence of the decision-makers, but analysts at Crete did not interact with Freyberg, the commanding officer. Bletchley could not have taken such steps, because they did not know Freyberg was skeptical of the information.

Horizontal Integration. Horizontal integration of collectors was equally effective at Midway and Crete, according to the metric of additional sensors put in place after the initial warning of the battle; this integration was less effective overall at Crete, however, because the Freyberg did not believe the initial warning he received. At Midway, radar sensors[57] and reconnaissance fighters[58] detected the Japanese fleet as it approached on 3 June. One sensor deployment in particular allowed the Americans to locate the Japanese fleet: a submarine, part of a perimeter set up by Nimitz before the battle in order to intercept the Japanese fleet,[59] detected a Japanese destroyer. The destroyer then decided to retreat back to the Japanese fleet, leaving a wake behind. Lieutenant-Commander Clarence McClusky gave chase, and spotted three Japanese carriers an hour later.[60]

[57] Keegan, 210.

[58] Lord, 67.

[59] Lord, 26.

[60] Keegan, 216. Keegan argues that the Japanese carriers "were discovered by chance," not based on intelligence. The submarine perimeter, however, allowed for that bit of chance to turn toward the Americans. McClusky did not know for certain that following the destroyer would lead him to the fleet: he had to make a choice and incur some level of risk. However, the presence of the submarine perimeter offered him a decision he would not

Freyberg, by contrast, did not rely on the warning provided him before the battle, and his additional sensors did not deliver an advantage. For horizontal integration to have been effective, Freyberg would have had to believe the initial warning of an airborne attack, which he probably did not. When the attack on Crete began, the commencement of German bombings led Admiral Andrew Cunningham in Cairo to dispatch a naval task force into the Aegean Sea. Ultra had revealed the location of the German convoy on the morning of 21 May, which Cunningham's task-force then confirmed with a surveillance aircraft.[61] Late on 21 May, the Royal Navy destroyed the German troop transports. Freyberg learned of this from his intelligence officer Captain Sandford and went to sleep thinking "the battle was as good as won."[62] Unfortunately for Freyberg and the Cretans, the main target of the German attack was the airfield at Maleme, the base from which the Germans eventually took the island. Those sensors employed by the Royal Navy only led Freyberg astray, because he believed the German attack was coming from the sea. Ironically, the horizontal integration that kept Freyberg informed of the German convoys' destruction gave him a false confidence and further dissuaded him from believing the Ultra intelligence provided to him the day before.

According to Sims's theory, the integration of collection is crucial for securing advantage if the decision-maker is right; the independence of collectors is nonetheless crucial for protecting

---

otherwise of have faced. He was in a sense "lucky," because he made the right decision, when there was a chance he might still have decided not to follow the destroyer. Without the horizontal integration of collectors, however, he never would have faced a choice at all. Good horizontal integration of collectors, therefore, was critical in allowing the Americans to find the Japanese carriers as soon as they did. This example also illustrates how perfect accuracy is not necessary for intelligence to provide decision advantage: in this case, it was enough for intelligence present an option that otherwise would have gone overlooked by a decision-maker.

[61] Beevor, 159-160. The reconnaissance plane was dispatched in part to protect Ultra sources, which initially had revealed the location of the German ships.

[62] Beevor, 161-162.

decision-makers against the possibility they are wrong. In Crete, intelligence provided neither the first nor second.

Conclusions for the Debate

Comparing the battles of Midway and Crete across the four categories of intelligence demonstrates the clear superiority of intelligence at Midway, particularly in the area of transmission. Is this enough to prove intelligence was "decisive"? The case studies suggest that it was the improvement in transmission of the information that allowed decision-makers to act at Midway, but a deficit in this same measure that kept the commander at Crete from defending against the main enemy attack. As the skeptics of intelligence argue, even an accurate prediction of events is worthless without adequate force to take action on those predictions. The same is true if the information itself is considered unreliable. The cases do not conclusively resolve the debate over intelligence's impact on war, but they do illustrate that Sims's broader notion of intelligence explains how intelligence can give military commanders an advantage over their adversaries.

That is not to say the battles would necessarily have gone differently had the warnings been received differently. Keegan is correct that Midway could easily have been lost without a few crucial turns of luck, and Freyberg could potentially have made the same decisions regarding Crete's defense even if he had believed the intelligence. Crete's defenders, however, would have stood a better chance of winning had Freyberg understood that the real threat was from the air and not the sea. In this way, the problem at Crete was clearly one of transmission. As Keegan himself writes, "Freyberg was not fully let into the Engima—properly speaking the Ultra—

secret. Few commanders were. The Ultra system allowed only very senior officers, usually theatre commanders, in this case General Wavell in Cairo, to know that German signals were being decrypted in real time."[63] Freyberg kept one of his best regiments at the airfield near Canea to defend against a seaborne attack, a decision he might have reconsidered had he known *with confidence* that the bulk of enemy troops would arrive from the air.[64] Keegan argues, in part, that it was the inaccuracy of the intelligence that led Freyberg astray.[65] The Enigma signals sent to Crete, however, clearly place the emphasis on the airborne attack.[66] In contrast to Keegan's analysis, it was not Bletchley's inability to intercept and decrypt accurate information that was at fault, but the failure to derive the meaning of that information for the competition and deliver it in a way that Freyberg would understand and believe. Improved transmission would unquestionably have left Freyberg a much better equipped decision-maker. An application of Sims's broader concept of intelligence, then, helps diagnose why the defense of Crete failed, despite Freyberg's possession of the enemy's playbook.

In contrast, the Allies had an advantage over the Japanese at Midway, because they planned to defend Midway rather than Hawaii or the West Coast. It is hard to overstate the importance of the role of offensive counterintelligence in resolving the US military's dilemma of

[63] Keegan, 169-170.

[64] Beevor, 157.

[65] Keegan, 169. Keegan engages in a counterfactual analysis when he writes, had "the raw decrypts revealed which units were to land where, Freyberg might have conducted the battle differently. He might have concentrated more of his available strength at Maleme and thus denied the airfield to the enemy, in which case Germany certainly would have lost the Battle of Crete."

[66] Freyberg's actions suggest that he believed the main German attack would be from the sea, rather than from the air. Freyberg may have been making decisions based on capabilities and worst-case scenarios, rather than intelligence assessments of enemy intentions (Beevor, 94).

where to focus the Pacific fleet. In early May, a vicious bureaucratic argument was brewing over the target of Japan's offensive. Op-20-G, the Washington-based signals intelligence organization, was in a "full-scale office war" against Admiral Richard Turner's War Plans Division over whether to defend Midway or Hawaii.[67] It was the old controversy over whether to plan based on enemy capabilities or intentions.[68] General Emmons wanted to plan for a worst-case scenario, because he would have been responsible had the Japanese attacked Hawaii while most of the Pacific fleet was positioned to defend Midway.[69] Resolving the dilemma allowed the full range of military decision-makers to prepare *with confidence* for an attack on Midway. While subsequent intercepts also confirmed Midway was the target, the early resolution of the question gave the United States a much-needed edge in the contest. One example was the repair of the carrier *Yorktown*, which the Japanese believed was sunk during the Doolittle Raid. On Nimitz's request, *Yorktown* hurried back to Pearl Harbor where it was put in dry dock and round-the-clock crews, motivated by the knowledge of the imminent Japanese attack on Midway, repaired it in a record three days.[70] During the battle, the *Yorktown* launched the bombers that, although they were destroyed, brought Japanese fighters to a lower altitude, allowing the next wave of American planes to attack the Japanese carriers. Keegan argues that this episode shows "the intelligence supplied to T[ask] F[orce] 16 and TF 17 had, indeed, thus far resulted only in

[67] Keegan, 203.

[68] Lord, 28.

[69] Lord, 25.

[70] Lord, 33.

catastrophe," but he fails to mention that *Yorktown*'s very presence at the battle was predicated on the early warning of the attack on Midway.[71]

Finally, strength alone cannot explain the outcome of the battles of Crete and Midway, because the militarily weaker side won both battles. Contrary to Keegan's thesis, this suggests that military "strength," was not the deciding factor.[72] At Midway, the US fleet faced the bulk of the Japanese Imperial Navy with only three aircraft carriers (all that were available at the time, to include the damaged *Yorktown*) and no supporting battleships. The Japanese by contrast had four aircraft carriers and five battleships. The United States deployed PBY-5 "flying boat" planes and VT-8 Torpedo bombers, both more vulnerable and less maneuverable than the Japanese *Zero* fighters, leaving the United States at a clear disadvantage once the fighting began.[73] At Crete, by contrast, Freyberg had a clear advantage of numbers: his defending troops outnumbered the German attackers nearly two to one.[74] There is no way to explain the outcome of either Midway or Crete in terms of pure military force: rather, it was the superior direction of inferior Allied resources that won Midway, and the inferior concentration of superior Allied forces that lost Crete. Good intelligence may not always lead to victory, but solid anticipation delivered through good transmission can help a commander concentrate his forces better than the enemy, the truly decisive factor in battle.

---

[71] Keegan, 215.

[72] For this argument, I must thank my thesis seminar colleague Peter Mattis.

[73] For a full overview of the US and Japanese orders of battle before Midway, see Healy, 24-28.

[74] Keegan, 171 notes Freyberg's superior numbers: "[T]he garrison, though disorganized by its Greek ordeal, was not at a disadvantage of numbers (42,460 British Commonwealth and Greek troops to 22,040 German)."

Broader Implications for Intelligence

This study suggests that for intelligence professionals, awareness of the decision-maker is just as important as knowledge of the enemy. Rochefort understood Japanese intentions, but he also understood the dilemma of US military leadership, and this knowledge prompted him to develop an ingenious way to resolve the problem. By contrast, Bletchley's knowledge of the enemy's plans for Crete, without a corresponding knowledge of how to convince Freyberg of its truth and relevance, did not serve the defenders of Crete well. This ability to apply a "net-assessment" of a competition is one hallmark of a truly excellent intelligence service. Yet this is sometimes difficult for the American intelligence community to grasp.[75] Thus, the following implications of the study fall under the broader umbrella of transmission, and represent areas for future research.

Boosting Transmission. Intelligence at Midway illustrates how transmission can be boosted in different ways. Sims points out that decision-makers will probably trust intelligence that they can "review, test, and probe."[76] This is true, as we have seen: Nimitz and other high-ranking US military officials eventually accepted the intelligence before the attack on Midway, because they could probe its source. The case of Midway also suggests that there are more ways to develop good transmission, even when an intelligence service's prior failure has resulted in a

[75] Sims, in "A Theory of Intelligence and International Politics," 78-79, presents an extended metaphor of Indiana Jones facing a skilled swordsman, a competition that would be particularly difficult for the American intelligence community to understand. Using their training, many analysts would expound on the swordsman's fighting skills, although it would be more useful for them to offer the decision-maker, Indiana Jones, a new and more effective way to engage the swordsman—with a gun, for instance. "[C]ivilian analysts in particular are also trained to believe that a 'red line' must exist between themselves and the policy makers. If asked by Professor Jones about what to do in the face of the swordsman, most would stay safely mute. They have been trained to do so."

[76] Sims, "Defending Adaptive Realism," 156.

particularly devastating blow, such as the surprise on Pearl Harbor. First, Rochefort's use of offensive counterintelligence to build confidence for his decision-maker helped overcome the US military's past distrust of intelligence. In addition, Rochefort also increased transmission by assigning Captain Steele as a "devil's advocate" to question the assumptions behind CIU's assessments, in direct response to General Emmons's concerns about his ability to divine Japanese intentions. Such a move was inconvenient for CIU, because the additional labor of a contrarian decreased efficiency, but it paid dividends for transmission.[77]

Overcoming Cognitive Bias. The cases of Midway and Crete show that transmission is of even greater importance when it needs to overturn a decision-maker's preconceived notion. To deliver decision advantage in both cases, intelligence had to overcome longstanding cognitive biases. At Midway, Rochefort had to contend with Navy and Army doctrine. His focus on the decision-maker helped him overcome this bias. At Crete, Bletchley had to overcome the idea that every attack on an island in history had been from amphibious assault. Bletchley failed partly because they did not know Freyberg's concern, and partly because Freyberg was not aware of the true source of the information, rendering it less reliable.

Interconnectedness of the Intelligence Functions. The case studies also suggest that different types of competitions require different mixtures of the four intelligence functions. While the theory provides the tools for intelligence, it does not speak to the particular balance among those tools. For example, there is a natural tension between anticipation and

[77] Lord, 25: "…Steele really threw himself into the job. Layton rued the day it ever happened, but from Nimitz's point of view the assignment served two very useful purposes. First, it did something specific about General Emmons's letter without any real change in course; second, it provided a genuine check just in case they all were wrong, and the Japanese really did have an extra trick or two."

transmission. Good anticipation requires an independent intelligence service, because it must be free to collect on potential new competitors that the decision-maker might not foresee. As Crete and Midway illustrate, however, good transmission requires tightly integrated command-and-control that lets the decision-maker direct collection toward his needs. This top-down direction of the intelligence infrastructure can hamper the independence needed for anticipation.[78]

The case studies I have analyzed suggest that in circumstances where a decision-maker is very close to a confrontation—such as an actual battle—the balance should swing toward transmission and vertical integration, because a decision-maker needs to trust the intelligence on which he is acting. An historical example from before WWII illustrates how intelligence in peacetime should put a premium on the independence that would allow anticipation of future enemies. The US State Department withdrew funding in 1929 from the Black Chamber, the first American peacetime organization for decrypting diplomatic traffic. Then Secretary of State Henry Stimson called the effort "highly unethical."[79] Stimson, later Secretary of War, oversaw the US Navy's decryption of the Japanese code that warned of the attack on Pearl Harbor but without enough specificity to determine the actual target with confidence. Ironically, that level of detail may have been available had the United States possessed a more robust decryption capability, which was hampered by Stimson's funding cut in 1929. US intelligence's inability to independently anticipate Japan as a rising competitor throughout the 1930s was due, at least in

[78] Although Sims notes this tension in her theoretical work, she has not provided a rule for resolving it.

[79] Intelligence historian Christopher Andrew puts it well: "In view of Stimson's well-advertised insistence on high moral standards in public affairs, his officials decided not to bring the existence of the Black Chamber to his attention until he had had some weeks to acclimate himself to the lower moral tone of day-to-day diplomacy." For more on the closing of the Black Chamber see Andrew, *For the President's Eyes Only: Secret Intelligence and the American Presidency from Washington to Bush* (New York, NY: HarperCollins, 1995), 72-73.

part, to the high level of vertical integration that allowed Stimson to close the Black Chamber. While an in-depth study of this and other examples is not possible here, such research could help Sims's theory better outline how to balance anticipation and transmission.

At what level decision-makers should delegate command and control of intelligence collection also depends on the nature of the competition. During WWII, Ultra decrypts were tightly controlled by the British Prime Minister, Winston Churchill, and Wavell was one of the few who knew the source. Freyberg, however, was not let in on the secret. As compared to Midway, Freyberg was more like Rear Admiral Theobald, told to defend a certain area but without the benefit of knowing the reliability of the information. In the case of Midway, the battle was won despite Theobald's failure, because the Japanese attack on the Dutch Harbor was only a feint. In the case of Crete, however, Freyberg could not afford to fail, because he was the overall commander on one side of the contest.

Sun Tzu said: "If you know the enemy and know yourself you need not fear the results of a hundred battles."[80] This statement captures the true essence of intelligence: understanding both sides of the competition. Those who wish to make intelligence decisive in battle would do well to heed his words.

[80] Sun Tzu, 13.

BIBLIOGRAPHY

Andrew, Christopher. *For the President's Eyes Only: Secret Intelligence and the American Presidency from Washington to Bush.* New York, NY: HarperCollins, 1995.

Barry, Stuart Milner. "Hut 6: Early Days." In *Codebreakers: The Inside Story of Bletchley Park* edited by F.H. Hinsley and Alan Stripp, 89-99. Oxford, U.K.: Oxford University Press, 1993.

Beevor, Antony. *Crete: The Battle and the Resistance.* Boulder, CA: Westview Press, 1994.

Bennet, Ralph. *Intelligence Investigations: How Ultra Changed History.* Portland, OR: Frank Cass, 1996.

_____. *Ultra and Mediterranean Strategy*. New York, NY: William Morrow and Co., 1989.

Budiansky, Stephen. "The Art of the DOUBLE CROSS." *World War II* Vol. 24 Iss. 1. (May 2009), 38-47.

Clausewitz, Carl Von. *On War.* Edited and translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1984.

Elder, Gregory. "Intelligence in War: It Can Be Decisive." *Studies in Intelligence* Vol 50., No. 2. (15 April 2007). Accessed 8 April 2011 at https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/csi-studies/studies/vol50no2/html_files/Intelligence_War_2.htm.

Healy, Mark. *Midway 1942: The Turning Point in the Pacific.* Westport, CT: Praeger, 2004.

Kahn, David. "The Rise of Intelligence." *Foreign Affairs* Vol. 85, No. 5 (September/October 2006), 125.

_____. *The Codebreakers: the Comprehensive History of Secret Communication from Ancient Times to the Internet*. (New York, NY: Scribner), 1996.

Keegan, John. *Intelligence in War: Knowledge of the Enemy from Napoleon to al-Qaeda.* New York, NY: Alfred A. Knopf, 2003.

Kiriakopoulos, George. *Ten Days to Destiny*. New York, NY: Franklin Watts, 1985.

Levite, Ariel. *Intelligence and Strategic Surprise*. New York, NY: Columbia University Press, 1987.

Lewin, Ronald. *The American Magic: Codes, Ciphers and the Defeat of Japan.* New York, NY: Farrar, Straus, Giroux, 1982.

Lord, Walter. *Midway: Incredible Victory*. Hertfordshire, U.K.: Wordsworth Editions, Ltd., 2000.

Lowenthal, Mark M. *Intelligence: From Secrets to Policy*. Washington, DC: Congressional Quarterly Press, 2003.

Prang, Gordon W. *Miracle at Midway*. New York, NY: McGraw-Hill Book Company, 1982.

Sims, Jennifer E. "A Theory of Intelligence and International Politics." In *National Intelligence Systems*, edited by Gregory F. Treverton and Wilhelm Agrell, 58-92. New York, NY: Cambridge University Press, 2009.

_____. "Defending Adaptive Realism: Intelligence Theory Comes of Age." In *Intelligence Theory: Key Questions and Debates*, edited by Peter Gill, 151-165. New York, NY: Routledge, 2009.

_____. "Twenty-First Century Counterintelligence: The Theoretical Basis for Reform." In Jennifer E. Sims and Burton Gerber, eds., Vaults Mirrors and Masks: Rediscovering US Counterintelligence, 19-50. Washington, DC: Georgetown University Press, 2009.

Smith, Michael, *The Emperor's Codes: The Breaking of Japan's Secret Ciphers*. New York, NY: Penguin Books, 2002.

Stewart, L.M. *The Struggle for Crete: The Story of a Lost Opportunity*. London, U.K.: Oxford University Press, 1966.

Sun Tzu. *The Art of War.* Translated by Lionel Giles. El Paso, TX: El Paso Norte Press, 2005.

Watson, Bob. "How the Bletchley Park Buildings Took Shape." In *Codebreakers: The Inside Story of Bletchley Park*, edited by F.H. Hinsley and Alan Stripp, 306-310. London, U.K.: Oxford University Press, 1993.

Welchman, Gordon. *The Hut Six Story*. New York, NY: McGraw-Hill Book Company, 1982.

Winterbotham, F.W. *The Ultra Secret*. London, U.K.: Weidenfeld and Nicolson, 1974.