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Deconstructing Nimitz's Principle of Calculated Risk

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DECONSTRUCTING NIMITZ'S PRINCIPLE OF CALCULATED RISK

Lessons for Today

Robert C. Rubel

United States Pacific Fleet
USS Pennsylvania, flagship
Flagship of the Commander-in-Chief

Serial 0114W *May 28, 1942*
SECRET
From: Commander-in-Chief, United States Pacific Fleet
To: Commander Striking Force (Operation Plan 29-42)
Subject: Letter of Instruction
1. In carrying out the task assigned in Operation Plan 29-42 you will be governed by the principle of calculated risk, which you shall interpret to mean the avoidance of exposure of your force to attack by superior enemy forces without good prospect of inflicting, as a result of such exposure, greater damage to the enemy. This applies to the landing phase as well as during preliminary air attacks.

C. W. Nimitz[1]

All military operations are attended by various forms of risk. Risk permeates the fabric of war—from the actions of individual soldiers, sailors, and airmen to the policies, strategies, and decisions of national leaders. Decisions and actions have both potential and real consequences, and intelligent decision making normally involves a calculation of the odds for success and failure, as well as consideration of the consequences of potential failure. When success is less than a sure thing but through analysis of the salient aspects of the problem, including costs and consequences of failure, a commander decides to proceed nonetheless, we can say that he is taking a "calculated risk."

Making a decision by such a method is different from proceeding on the basis of doctrine, ideology, or a heuristic. Commanders have adopted tactics and strategies based solely or substantially on prewar plans, political imperatives, or other factors that displace a calculation of risks involved in the issue at hand. In

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such cases no calculation of risk is made, but risks are nonetheless incurred. It is the element of consideration and explicit weighing of the odds, of the potential payoff and the potential costs, that distinguishes the calculated risk from other forms of decision making.

In this article we will focus on a very specific kind of calculated risk—the kind that attends the commitment of naval capital ships to battle. While this scenario may seem a subject of interest only to naval historians, the emerging realities of the U.S. Navy's operational environment demand that we revisit it and examine the prospects for its inclusion in doctrine. The logical starting point is Admiral Chester Nimitz's famous "letter of instruction" (actually, of course, transmitted as a message) to Rear Admirals Frank Jack Fletcher and Raymond Spruance on the eve of the battle of Midway. To quote a U.S. Navy website, "Nimitz clearly possessed tremendous faith in his subordinates, who were nevertheless guided by very clear instructions. His principle of calculated risk is, perhaps, his most brilliant contribution to the battle, in that it precisely and economically conveyed his intentions to his task force commanders. There was no doubt about what they were supposed to do, how they were supposed to do it, and what level of risk was acceptable."[2] We will deconstruct his instruction, teasing out its underlying logic and examining the context in which it was crafted, and then see how the results of the analysis might apply in today's environment.

CAPITAL SHIPS

Before we can start deconstructing Nimitz's calculated-risk instruction, we must establish the basis for calculation—the currency, so to speak, of naval power. For most of the nineteenth and twentieth centuries this unit of measurement was the capital ship. The original capital ship was the ship of the line, a large sailing vessel carrying seventy-four or more guns. These ships singly could dominate any other ship type, but they were expensive, so governments could afford to build them only in limited numbers. However, even marginal superiority in numbers, assuming that such factors as seamanship were roughly equal, tended to confer decisive strategic advantage. Capital ships thus became the units of currency in strategic calculations.

The shift from fighting sail to steel dreadnoughts did not appreciably alter the situation. The advent of the submarine and the torpedo at the dawn of the twentieth century was thought by many to spell the doom of capital ships, but the focus on the latter as the basis for naval arms limitation belied that claim. The 1922 Washington Naval Treaty was based on the ratio of capital ships of the principal naval powers of the era. The introduction of the aircraft carrier did not result in the immediate displacement of the dreadnought as the capital ship (and

if one follows the logic of capital ships, there can be only one type at a time), but of course Pearl Harbor propelled the transition.

By early 1942 the aircraft carrier was the ship type that mattered in the Pacific; the numbers available to each side governed where its forces could and could not operate and what missions it could perform at an acceptable degree of risk. Exact numbers of available types of carriers entered prominently into the plans and calculations of both sides. The first encounter between Japanese and American carriers occurred in the battle of the Coral Sea, 4–8 May 1942. In that fight the Japanese lost the light carrier *Shoho,* and the large fleet carrier *Shokaku* was heavily damaged. The U.S. Navy lost *Lexington,* and *Yorktown* was damaged. This left Admiral Nimitz with three carriers—*Enterprise, Yorktown,* and *Hornet*—at his immediate disposal and Admiral Yamamoto with four fleet carriers and two light carriers for his contemplated Midway operation. The United States was furiously building aircraft carriers, but these would not start to come on line for at least a year. The Japanese were also building, but because their capacity to do so was limited, each of their carriers was more of an irreplaceable strategic asset than one of the Americans' was.

At this early point in the war, in carrier-versus-carrier battles, the offense had the advantage. It was thought that one carrier air wing could put more than one carrier out of action.[3] As a consequence, carrier battles were risky, unstable affairs that hinged on striking effectively first. To do so, a carrier force had to locate its adversary before it was detected itself, or not long after. This was problematic for American carrier forces, because Japanese strike aircraft significantly outranged their U.S. counterparts. This meant that if the U.S. force were to engage on anything like equal terms, it had to avoid detection while at the same time detecting the Japanese force. If timing permitted, the U.S. force would use the cover of darkness to rush toward the Japanese force so that at daybreak its strike aircraft would be in range. However, the use of carrier aircraft as scouts produced a difficult zero-sum situation, as generally these aircraft could not be used in a strike until they had been recovered, refueled, and armed with bombs. When possible, land-based, long-range bombers and patrol planes were used for searches, to increase their "density" (intensity of coverage) and lessen the need for carrier-based scouting. Nonetheless, the ocean is a very large place, and any search scheme, however well designed, involves an element of chance. Most portions of a search area would eventually get covered, but the exact timing of detection was critical.

CALCULATED RISK AT MIDWAY

We start by considering how Nimitz's letter of instruction might have come into play. The principle of calculated risk hangs on the notion of relative attrition of

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symmetrical forces. As just discussed, after Pearl Harbor aircraft carriers became the coin of the realm of naval power. Nimitz had only three at his immediate disposal, and he was throwing them all into the fray. In theory, any naval ship is a "consumable" under the right circumstances, but Nimitz understood that if he lost more carriers than the enemy in this battle, its command of the sea would extend all the way to the U.S. Pacific coast; Japanese carriers would be able to strike where and when they wished. American naval airpower had to be preserved, regardless of what became of the small Midway archipelago. In their haste to mount their next operation, the Japanese relied on radio communications to coordinate planning. U.S. Pacific Fleet cryptanalysts were able to read enough of this traffic to establish that Admiral Yamamoto's next target would be Midway, and in fact they were able to determine intended force dispositions in some detail. This was precious information for Admiral Nimitz. His battle plan was thus predicated on the assumptions that, first, American intelligence on Japanese plans based on code breaking was accurate; second, the Japanese did not suspect the compromise; and third, this forewarning would permit the U.S. task force to get in a devastating first strike.

Tactical Level: Fletcher's Choice

Nimitz's letter of instruction states explicitly that Admirals Fletcher and Spruance were to avoid engagement with superior enemy forces unless by so doing they had the chance to inflict greater damage on the enemy than they would expect to receive. As we have seen, the key was to find and strike the Japanese first. How would the task force commanders find out if any of Nimitz's assumptions were false, at least in time to execute effectively the "avoidance" part of his instruction? First, any enemy radio traffic that could be decoded might give timely warning that the Japanese were on to the fact that their plans were known to the Americans. However, the Japanese navy had just changed its codes, and code breaking was out of the picture at this point.[4]

Beyond that, the key indicator could have been failure of the Japanese carrier force to show up where it was expected to. If air searches by aircraft flying from Midway had failed to yield a sighting of Admiral Chuichi Nagumo's four-carrier striking force north-northwest of Midway by daybreak on 4 June, as predicted by Nimitz's intelligence officers, a decision point would have been upon Fletcher. Should he hang around, hoping for a sighting? What if a Japanese scout plane had found him first? (As it happened, the Japanese cruiser *Tone*'s scout plane might have done just that by seven o'clock that morning if it had been launched on time.) Assuming that the Japanese carriers' flight decks were "spotted" for an antiship strike, as Yamamoto had directed be done and an American commander would have in any case to assume, the prospects for running away

from such a strike were poor. Thus by moving the night before toward the expected position of the Japanese force, Fletcher would have violated Nimitz's guidance. Given that long-range search aircraft had spotted the Japanese invasion force far to the west the day before, one had to assume the carriers were around somewhere.

The decision whether to stay and fight or to cut and run was balanced on a knife-edge. With the omniscience of hindsight we can see that the two forces were about two hundred miles apart when Midway planes first sighted the Japanese carriers. If Fletcher had turned away at that point, the Japanese aircraft, if they got into the air by 0730 and cruised at around 150 knots, could have overtaken him. In theory, then, Fletcher would have needed to break and run no later than about 0600 if no sighting had been made. In fact, the first conclusive sighting report came in at 0552.[5]

Absent any specific information on whether Fletcher had calculated a "fight or flee" time, the razor-thin margin we have calculated suggests that the previous day's sighting of the Japanese invasion force was what triggered commitment, presumably confirming that the intelligence was correct.[6] For better or worse, by sunrise on 4 June the American task force had been committed to battle and the calculated-risk instruction overtaken by events. Relative attrition was now a matter of tactical skill and luck, the parameters of the battle having been established by the planning and command skills of the respective fleet commanders in chief. There was, however, in the actual conduct of battle one instance of adherence to the calculated-risk directive, and that was Spruance's decision on the evening of 4 June to run eastward to avoid a night surface battle with the Japanese force. Calculated risk or not, this made good tactical sense, as Nagumo's force included two battleships and the American force had only cruisers. We must assume that Nimitz's calculated-risk order at least reinforced Spruance's natural caution.

Operational Level: Nimitz's Calculation

We now back up half a step and look over Nimitz's shoulder as he composes his message on calculated risk. Aside from the intelligence gleaned by his code breakers, there was no good indication of Japanese intentions. They might have been targeting any of a number of places in a vast theater, and Nimitz was under pressure to protect the Aleutians, Hawaii, and even the West Coast. From his perspective, this priceless intelligence represented an opportunity for an ambush. But he would have to go in with all his available carrier forces to have any chance of favorable reciprocal attrition. This was his calculated risk; the prospect of truncating the Japanese strategic initiative was the upside potential that justified the inherent risks of concentrating his three aircraft carriers. Did Nimitz have his own "fight or flee" decision point? Of course, he could have chosen to

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second-guess his code breakers and keep his carriers safely out of the range of the Japanese carriers.[7] If he had, the decision would have occurred in late May. Task Forces 16 and 17 would never have sortied to battle, or—in consideration of the concern of Admiral Ernest J. King, Commander in Chief, U.S. Fleet (COMINCH), that Hawaii was a target—they might have taken up a conservative position to the east.[8] Nimitz might, in contrast, have banked on Fletcher, as the senior task force commander, being able actually to execute the calculated-risk order on the avoidance side. As we have seen, however, by sunrise on 4 June the likelihood that Fletcher could do so was marginal at best. One wonders what would have been the thought processes of the American chain of command had no sightings been achieved on 3 June.

The possibility of Nimitz's plan's unraveling did not hinge only on a potential absence of timely sightings by reconnaissance aircraft. There was concern from his staff that radio chatter by U.S. Navy units might "tip" the Japanese that the Americans were on to their plans.[9] The cryptanalysts certainly felt that way, even up to the eve of battle: "HYPO's analysts worried that the Japanese might put two and two together, grasp what was going on, and spring a trap of their own."[10] In fact, Japanese analysts were picking up on such indications, but for various reasons their assessments were not passed to Nagumo. Nagumo's staff actually did intercept some of this information but apparently did not "put two and two together"—at least not in time.[11] As with so many aspects of the battle, the Japanese force failed to capitalize on such "seams" and defects as there were in the American plan and its execution. However, from the standpoint of sound military planning, we see that the Americans really had no effective "branch plan" to cover instances like this, a plan that would have brought the principle of calculated risk to the fore.

Strategic Level: King's Order

What did the situation look like from the vantage point of Admiral King, sitting in Washington? King was ostensibly operating under the Allies' agreed "Germany first" strategy, which envisioned an invasion of North Africa in 1942. This operation would require aircraft carrier support; the small carrier *Ranger* had been assigned. Otherwise, King's eye was keenly focused on the Pacific, and he was determined to take the offensive there as soon as conditions permitted. An American defeat at Midway—that is, the loss of two or three carriers—would have set this objective back many months, if not a year or more, whereas the loss of Midway itself, the carriers being preserved, would likely have meant a lesser delay. Thus Nimitz's calculated risk made good sense from King's global perspective, less with respect to other operations than from a timing standpoint. That is probably why, as we will see, he had directed Nimitz to use caution with the carriers and cruisers.

There is another angle on Nimitz's instruction that bears scrutiny. It turns out that the whole idea of calculated risk was likely not Nimitz's in the first place. In a 17 May message to Nimitz, COMINCH provided the following injunction: "In view of last clause of para two chiefly to employ strong attrition tactics and not repeat not allow our forces to accept such decisive action as would be likely to incur heavy losses in our carriers and cruisers."[12] Moreover, there is an entry in Nimitz's records for 25 May that several COMINCH suggestions that had been received by message had been complied with.[13] Nimitz's estimate of the situation of 26 May is pretty explicit about the matter:

> 3. Not only our directive from Commander-in-Chief, U.S. Fleet, but also common sense dictates that we cannot now afford to slug it out with the probably superior approaching Japanese forces. We must endeavor to reduce his forces by attrition—submarine attacks, air bombing, attack on isolated units. The principle of calculated chance [*sic*] is indicated, as set forth in a letter of instructions to Task Force EIGHT.[14] If attrition is successful the enemy must accept the failure of his venture or risk battle on disadvantageous terms for him.[15]

Indeed, paragraph 3(a)(1) of Operation Plan 29-42 orders, "Inflict maximum damage on enemy by employing strong attrition tactics. Do not accept such decisive action as would be likely to incur heavy losses in our carriers and cruisers. A letter of instructions is being furnished separately to striking force commanders."[16] The mechanisms internal to Nimitz's staff are not known, but here is at least evidence that the calculated-risk principle originated with King. The implications are not only interesting in the context of the history of the battle but also perhaps important for today. The picture that emerges is of an American commander who has gone "all in" to do battle with the Japanese because he believes he has exquisite intelligence that will allow him to gain a decisive victory. This view is backed up by Joseph Rochefort, Nimitz's chief cryptanalyst, who said of a meeting to which he was called on 27 May, "It was obvious when Nimitz sent for me that he had already decided his course of action. He had already made up his own operation orders by this time and the matter was closed."[17]

The Japanese Perspective

Although we are dissecting Admiral Nimitz's calculated-risk order, examining the issue from the Japanese perspective gives additional insights. Setting aside the widely reported issue of "victory disease"—the overconfidence that infected the Imperial Japanese Navy at that point in the war—we can see whether there was any corresponding calculation of risk on that side. The Japanese certainly faced potential logistical challenges in seizing and holding Midway, but so long as they avoided pitched battles with land-based American aircraft, their carriers were at liberty to conduct hit-and-run raids almost wherever they wished. In this way the

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Japanese could have significantly disrupted and delayed the U.S. Navy's war effort in the Pacific. However, the Midway operation has to be viewed in the context of their larger strategy. Admittedly the operation had a number of nested objectives, among which was eliminating the threat of American interference with projected operations in the "southern resource area." In other words, their carriers would be needed elsewhere later, especially if Midway produced a Japanese victory. However, if the Japanese lost too many carriers in the process, even in victory, these other operations might be delayed or compromised. Thus Admiral Yamamoto might have done well to issue his own calculated-risk directive.

It is also worthwhile examining Admiral Nagumo's actions at Midway on the afternoon of 4 June. The morning had brought disaster, putting three of his four carriers out of action. He had one left, *Hiryu*. Setting aside all the Japanese cultural baggage concerning aggressiveness and focusing instead on the battle at hand, we might apply our calculated-risk reasoning to his decision-making situation. He had just lost three of Japan's six large fleet carriers, and Japanese industry was not in a position to spew out replacements like its American counterpart. *Hiryu* was now more precious than ever.[18] A set of calculations like those we performed before, for Fletcher and Spruance, reveals that shortly after the devastating American attack at 1020, Nagumo would have been at the calculated-risk choice point. If at 1100 he had decided to run west at thirty knots with *Hiryu,* he would have been just outside the range of Spruance's aircraft by the time protective dusk fell. By launching an attack against American forces he ensured the doom of *Hiryu*. Our intent is not to criticize Admiral Nagumo but to illustrate the tactical dynamics of calculated risk. Key decision points sneak up on a commander or can pass unnoticed. These choice points might be tactical, but they necessarily have strategic consequences.

CALCULATED RISK IN TODAY'S ENVIRONMENT

It has been a long time since Nimitz's calculated-risk instruction has had other than historical interest for American naval officers. This, of course, is due to nearly absolute U.S. command of the sea since the end of World War II. Now, however, the rise of China and its navy presents a situation in which calculated-risk logic might very well come into play. The difficulty of actually adhering to this logic, as illustrated by our parsing of Nimitz's directive, suggests that both careful study and analysis are needed, as well as a determined effort to incorporate the logic into education and doctrine.

First, and most obviously, the strategic context for any new instantiation of calculated risk is radically different now than in 1942. The United States enjoys global command of the seas as a default condition; it does not have to win it.

What the United States *does* do is exercise its command of the sea through the forward deployment of its carrier battle groups around the periphery of Eurasia. It does so to deter potential aggressors and generally contribute to the "strategic stability" that allows the global system of trade and security to function smoothly. It is the power-projection-ashore capability of the carriers, coupled with their mobility and ability to be "ready on arrival," that makes them broadly useful to American presidents. However, the United States has only eleven of them (ten, temporarily), and while this number exceeds the total in the rest of the world combined, it is small enough when all the factors underpinning forward presence are factored in. In view of the strategic purposes of American carriers and the scope of their missions, eleven is not much more sufficient to us today than were three to Nimitz. So American carriers are still scarce strategic assets.

The Global (Strategic) Level

Let us parse today's version of calculated risk in a top-down manner. Today there is no position of naval command authority equivalent to that of Admiral King, but we can at least take his view in terms of asset management. The recent "rebalance" to the Pacific would seem to mirror a bit the conditions in 1942, when fleet carriers were not a critical asset in the Atlantic. However, the current crisis in Crimea and Ukraine may signal an increased need for carriers in and around the European theater. In the 1960s and '70s it would have been unthinkable to strip the Atlantic Fleet of carriers, despite the war in Vietnam. However, in those days the U.S. Navy had, at various times, from thirteen to twenty-three carriers. Eleven just barely allows the maintenance of three stations continuously with single carrier strike groups. Any concentration of carriers such as occurred in DESERT STORM (seven) would require the gapping of one or more stations and would disrupt the logistic cycle for years. In 1990 this was an acceptable risk, given the unraveling of the Soviet Union and a China that had not yet built a significant navy. In today's world such a risk is less strategically acceptable.

Of course, none of this logic has yet considered the notion of carrier losses. The United States can build only one at a time, and each takes four or five years, plus another two for outfitting and workups. In wartime this could be compressed somewhat, but in no way will the Chief of Naval Operations today have the industrial production backstop enjoyed by King and Nimitz. For all intents and purposes, we are in the position of Yamamoto and Nagumo; losses to carriers could not be made good in the likely span of a modern war. This being the case, it becomes important to consider the ends for which the carriers are being risked. Is there a strategic imperative or an upside potential that makes such risk acceptable? This is unknown intellectual territory for admirals several generations removed from June 1942.

The first problem we encounter is that although Russia and China have one aircraft carrier each and China is building more, these ships do not constitute the foundations of their navies' strategic capabilities. So the kind of symmetrical attrition calculation that underpinned Nimitz's instruction does not exist now. We must also note that China's potential military objectives lie close to home, generally beneath a dense missile and airpower umbrella. Defeating Chinese military aggression against Taiwan or various islands in the East and South China Seas would be desirable, but what things can aircraft carriers do that would satisfy the upside of the calculated-risk equation? It is beyond the scope of this article to define what those things might be; the main point here is that we must ask the question, instead of reflexively committing carriers as the Japanese—and perhaps the Americans—did in 1942.

The Regional (Operational) Level

Let's "drill down" a level and examine the issue from a theater order-of-battle perspective. What if Nimitz had possessed a submarine fleet that was perhaps not much larger than the one he had—several American submarines actually got in among Nagumo's carriers at Midway but to no good effect—but was equipped with torpedoes with the range and lethality of the Japanese Long Lance? Maybe that would have changed things. If Nimitz had had enough confidence in such boats, he would not have needed to risk his precious carriers and would still have had a good prospect of sinking Nagumo's. Such a situation would essentially take the calculated-risk equation off the table. Nimitz might lose several submarines in the battle, but these could be made good more quickly than could Japanese losses. We can see that a dozen or so well-placed torpedoes would have been the functional equivalent of several carrier air wings of the era. Such a comparison cannot be made today, because of the fundamentally different warfare environment wrought by missiles and other modern technology, but the overall lesson is still clear and valid—dispersal of credible combat power among submarines or smaller surface combatants removes the embedded dilemma inherent in the calculated-risk equation.

The Local (Tactical) Level

However, we should not stop with the submarines-versus-carriers discussion. Let us descend farther, to the level of Fletcher and Spruance—in today's parlance, the carrier battle group commander. Let's also imagine some kind of crisis involving China or perhaps Iran. The United States has elected to dispatch one carrier or more to the scene as a show of force and resolve. If such positioning puts the carriers inside the threat arcs of hostile missile systems or mixes them among potentially hostile combatants (as was the case in the 1973 Arab-Israeli war), a new version of the calculated-risk equation emerges. Assuming the carrier's

escorts cannot create an impregnable bastion around the carrier, the battle-group commander has a decision to make. Does he or she break and run at some point before shots are fired in order to get untargeted? Doing so could have adverse political effects. In 1973, had U.S. carrier groups run west of the Strait of Sicily to extract themselves from the spiderweb of Soviet missile shooters, the Soviets would have been left in possession of the eastern Mediterranean and Israel would have been isolated. Does simply showing up at the scene of a crisis automatically take the battle group commander past the calculated-risk decision point? It would seem so, as modern aircraft carriers are no more able to outrun antiship missiles than were Nimitz's carriers to outrun Japanese carrier aircraft.

The Chain of Command

In 1942 the U.S. Navy chain of command in the Pacific consisted of three layers. As we have seen, the notion of limiting risk to the aircraft carriers appears to have originated with Admiral King, whose strategic perspective allowed him to weigh objectively the potential costs and benefits of a pitched battle off Midway. His guidance was processed by Nimitz's staff and turned into a letter of instruction to Fletcher and Spruance. Even with so straightforward a process, it appears that neither Nimitz nor his task force commanders really took the principle to heart.

Today the chain of command is not as short or as straightforward, at least from a naval perspective. In the Pacific, a carrier task force commander has above him or her four levels of command: the numbered fleet (say, Seventh Fleet), the theater naval component (Pacific Fleet), the combatant commander (U.S. Pacific Command), and finally the Secretary of Defense. Whatever may be all the potential problems with this arrangement, two are salient here.[19] First, and perhaps most problematic, is the lack of a naval commander with global perspective. The Joint Staff has no command authority, and the secretary's staff is neither designed nor manned to exert direct operational control. Rather, both provide broad policy guidance to the regional combatant commanders. It is therefore not likely that finely tuned assessments of allowable risk to naval forces will emanate from the Pentagon. The second issue resides within Pacific Command itself. Absent any useful risk guidance from Washington, the burden of assessment falls on the combatant commander. However, this officer's perspective is regional, not global, and his or her preoccupation will be obtaining political access—always a consuming challenge—and achieving overall synchronization of joint forces. This leaves the commander of the Pacific Fleet as the uppermost command echelon positioned to assess allowable risk. As we have seen from the battle of Midway example, objectivity about risk can be hard to attain.

Our analysis suggests several potential fixes for this critical emerging issue. The first and perhaps most effective would be for the Navy to develop a

calculated-risk doctrine and ensure that it be incorporated into almost every level of training and education. It needs to become almost an instinctive reflex of officers selected for operational command. We cannot count on the current military command structure to generate such calculations. The second potential fix, much more difficult to put into operation, would be to establish a global-level naval component commander, with staff, responsible for the management of scarce naval resources from a global perspective. Most practically, this would be a collateral duty of the Chief of Naval Operations.

Finally, we have the somewhat murky issue of staff objectivity. Much has been made in the literature of war about the French adherence on the eve of World War I to the doctrine of all-out offense, which produced disaster in the Battle of the Frontiers in 1914. Admiral William F. Halsey's reflexive aggressiveness is also a subject of criticism. Our analysis here provides at least some indication that Nimitz and his staff had developed a collective determination that their communications intelligence was correct—and, of course, there they had good reasons. However, this underlying belief seemed to undercut the written guidance from King, which was put in both the operations order and the letter of instruction. What was not in the instruction was any decision branch that envisioned what to do if the enemy were not located first or by a certain time. This indicates there was no real thought given to a "Plan B" should the searches not have produced results; the American planners were committed to executing a battle plan based on the assumption that their intelligence was accurate. Historically, the results justified that confidence. However, in retrospect we can see that the principle of calculated risk was not observed in the lead-up to the battle. The general danger here is of the development of a form of "groupthink" that leads to unexamined assumptions and potentially lures commanders and staffs into military blunders. Intelligence is a mesmerizing thing. The Allies used it with some effect in the European theater before the invasion of Sicily when they put fake invasion plans in a briefcase and attached it to a cadaver dressed as a diplomatic messenger. The body washed ashore in Spain, where the plans were found and taken to Hitler, who bought the ruse conveyed by the planted papers that the invasion would be in Greece and persisted in believing so in the critical first weeks of the actual invasion.[20] It is one thing to rely on intelligence; it is quite another to fail to make provision for retrieving the situation if the intelligence proves false.

Avoiding the Problem

Earlier, we speculated about how Nimitz might have been spared the dilemma inherent in the principle of calculated risk if he had had a substantial flotilla of submarines armed with good torpedoes. The principle of calculated risk, as defined in this article, is a consequence of concentration and scarcity, manifested

in the form of a capital ship—the aircraft carrier. If combat power is distributed and units are relatively numerous, the principle, with its embedded command dilemma, is avoided. In today's environment, this approach would take the form of smaller combatants, including submarines, armed with antiship missiles and other advanced weapons and sensors. Also embedded in the logic of calculated risk is the idea of the "decisive battle." Risking scarce and expensive strategic assets in an engagement that does not figure to be strategically, or even operationally, decisive makes no sense. Calculated risk, as specifically defined herein, cannot enter into the decision-making calculus in such a situation. Therefore, if an engagement is likely to be part of a campaign of cumulative attrition—such as the Battle of the Atlantic in World War II—the forces committed ought to be appropriate to the form of warfare envisioned. Given the projected objectives of revisionist coastal states in today's world, however, it is more likely that drawn-out attrition warfare will result from our attempts to counteract their aggression, unless the United States inappropriately commits its strategic forces to a high-risk environment. Understanding the internal logic of calculated risk can assist in revising the U.S. Navy's approach to warfare in the littorals.

A NEW SET OF INTELLECTUAL REFLEXES

Our inquiry has revealed several things. First, unless there was in fact some understanding among American commanders on 3 June 1942 that Fletcher and Spruance would "bail out" if there was no sighting of Japanese forces before sunrise on the 4th, the calculated-risk directive was not worth the paper it was written on, regardless of its vaunted clarity. Japanese operational and tactical mistakes only served to cover over this uncomfortable fact. That being said, the logic of calculated risk certainly applied on both sides of the battle. Nagumo had his chance to abide by the logic of relative attrition, but of course no such guidance existed in the Imperial Japanese Navy. In retrospect, if someone were going to back off, it would have been Nimitz himself. However, if the notion of calculated risk was not his in the first place, one wonders whether he was even thinking in those terms. The sighting of the Japanese invasion force on 3 June spared him the decision, if indeed he ever anticipated having to make one. What was really going on was that two fleets were hell-bent on destroying each other, and the subtleties of calculated risk had little or nothing to do with the matter.

Such a negative judgment notwithstanding, we can see that the principle of calculated risk has salience today, perhaps even more than in 1942. Among the many "warfare gaps" that afflict the U.S. Navy today in terms of readiness to fight a high-end war at sea is the intellectual preparation of the officer corps, which has been accustomed to projecting power across the shore with impunity. As China

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builds its capability to deny access to the high seas within the first and second "island chains" and as advanced antiship missile technology proliferates, the risks to U.S. aircraft carriers and other forces will escalate, and a new set of intellectual reflexes will be needed, from the local to the global level in the naval command structure. The need is particularly great in view of all the rhetoric that has been advanced over the years asserting the "dominance" that is presumed to be possessed, or else aspired to, by U.S. forces. While dominance is certainly desirable, the facts quietly taking shape in the world suggest that the Navy's situation is more like that which Admiral Nimitz faced in 1942 than what he enjoyed in 1945. Recognition of the problem is the first step in solving it. There is a particular logic that attends war at sea, and calculated risk, as so elegantly but perhaps futilely articulated by Admiral Nimitz in 1942, is an emerging critical element that deserves more study and consideration.

NOTES

1. This now-declassified document can be found in "Command Summary of Fleet Admiral Chester W. Nimitz, USN: Volume 1 of 8; Running Estimate and Summary Maintained by Captain James M. Steele, USN, CINCPAC Staff at Pearl Harbor, Hawaii, Covering the Period 7 December 1941 to 31 August 1942," U.S. Naval War College Naval Historical Collection, p. 490, usnwc.edu/Academics/Library/Naval-Historical-Collection.aspx#items/show/849. This recently established online resource is hereafter cited as the "Graybook," the name (recalling the grey covers of the original document collection) by which it is commonly known.
2. "Midway's Strategic Lessons," *Navy History and Heritage Command,* www.history.navy.mil/.
3. Wayne Hughes, *Fleet Tactics and Coastal Combat* (Annapolis, Md.: Naval Institute Press, 2000), pp. 100–101.
4. Elliot Carlson, *Joe Rochefort's War* (Annapolis, Md.: Naval Institute Press, 2011), pp. 358–59.
5. Rear Adm. Richard Bates, USN, *The Battle of Midway including the Aleutian Phase, June 3 to June 14, 1942: Strategical and Tactical Analysis* (Newport, R.I.: Naval War College, 1948), p. 110.
6. Graybook. The following excerpt gives an indication of the Pacific Fleet staff's mindset on the evening of 3 June: "The force approaching MIDWAY has grown to 20–23 ships screened by DDs [destroyers]. . . . As the day ends 4 PBYs [Catalina seaplanes] loaded with torpedoes are enroute from MIDWAY for a night attack. The CV [aircraft carrier] attack on MIDWAY is scheduled for tomorrow at dawn. Our RI [radio intelligence] and CI [cryptanalytic intelligence] is [*sic*] proving exceptionally fine."
7. Reliance on code-breaking intelligence was certainly an issue. In his 21 May estimate of the situation Nimitz saw fit to include the sentences "Our sole source of information for this problem is RI and CI. The enemy may be deceiving us." Ibid., p. 510.
8. King's outlook, notwithstanding his admitted agreement with Nimitz's estimate, can be inferred from the wording of a message he sent on 17 May: "I consider that our appropriate strategy is to make strong concentration Hawaiian Area." Ibid., p. 490.
9. Among several Graybook entries dealing with the subject is this one: "There is good reason to believe that Orange [i.e., Japan] is using our plane–shore radio traffic to deduce our deployment. This also has the possible result of drying up our information sources" (p. 541).

10. Carlson, *Joe Rochefort's War,* p. 366. "HYPO," or Fleet Radio Unit Pacific, in Hawaii (where Nimitz's headquarters was located), was at that time one of two major Allied signals-intelligence units in the Pacific.
11. Jonathan B. Parshall and Anthony P. Tully, *Shattered Sword: The Untold Story of the Battle of Midway* (Dulles, Va.: Potomac Books, 2005), pp. 98–104.
12. Graybook, p. 490.
13. Ibid., p. 542.
14. It is assumed that "calculated chance" was an early version of "calculated risk."
15. Graybook, p. 520.
16. Operation Plan 29-42 and other documents related to the battle can be found at *Midway, 1942: Facts & Documents,* midway1942.org/.
17. Carlson, *Joe Rochefort's War,* p. 351.
18. Parshall and Tully, *Shattered Sword,* pp. 418–19.
19. For a deeper analysis of these issues see Justin Kelly and Mike Brennan, *Alien: How Operational Art Devoured Strategy* (Carlisle, Pa.: U.S. Army Strategic Studies Institute, September 2009), available at www.strategicstudiesinstitute.army.mil/. See also Robert C. Rubel, "Slicing the Onion Differently," *Joint Force Quarterly* (1st Quarter 2012), available at www.ndu.edu/; repr. in idem, *Writing to Think: The Intellectual Journey of a Naval Career,* Newport Paper 41 (Newport, R.I.: Naval War College Press, 2014), pp. 159–70, available at www.usnwc.edu/press.
20. Ben Macintyre, *Operation Mincemeat: How a Dead Man and a Bizarre Plan Fooled the Nazis and Assured an Allied Victory* (New York: Broadway, 2011).

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