Naval Tactics And Their Influence on Strategy

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A Strategy-Tactics Dialectic

A viewpoint almost taken for granted among Defense officials is that national policy determines military strategy, which in turn determines the quantities and allocations of forces. Let me offer a contrasting position:

"What actually halts the aggressor's action is the fear of defeat by the defender's forces, [even though] he is not likely to concede this, at least not openly.

"One may admit that even where the decision has been bloodless, it was determined in the last analysis by engagements that did not take place but had merely been offered . . . where the tactical results of the engagement are assumed to be the *basis* of all strategic plans, it is always possible, and a serious risk, that the attacker will proceed on that basis. He will endeavor above all to be tactically superior, in order to upset the enemy's strategic planning. The latter [strategic planning] therefore, can never be considered *as something* independent: it can only become valid when one has reason to be confident of tactical success . . . it is useful to emphasize that all strategic planning rests on tactical success alone, and that—whether the solution is arrived at in battle or not—this is in all cases the actual fundamental basis for the decision. Only when one has no need to fear the outcome—because of the enemy's character or situation or because the two armies are unevenly matched physically and psychologically or indeed because one's own side is the stronger—only then can one expect results from strategic combinations *alone.*"

I have been quoting Clausewitz, of course. We should remember that Clausewitz dealt with ground warfare. The passage above is found in Clausewitz' discussion of defense, which he and other analysts believe is the

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stronger tactical posture on land. As will be seen, I hold that the tactical nature of ground war often differs from sea war. Specifically, there has been no corresponding tactical advantage for the defense in naval combat. Nevertheless, in this instance I am happy to take Clausewitz as my text, and assert that what he thought to be the link between tactics and strategy on the ground applies even more strongly at sea, if that is possible.

The reason that a discussion of tactics is appropriate when discussing contemporary strategy is that strategy must rest on the rock of combat capability. One builds decisions from the bottom up: tactics affect the efficacy of forces; the correlation of forces reveals what strategy our forces can support, and a supportable military strategy governs national aims and ambitions.

This is the opposite of the Secretary of Defense's "Defense Guidance," which starts with national goals and policies, which in due course defines strategy, and which takes largely for granted that existing forces will be able to execute it. The top-down approach is proper for deriving force requirements to guide procurement policies, but force requirements—if they exceed existing force levels—can only be built in the future. If one is concerned with present strategy, he must know current capabilities and design his strategy accordingly. If the forces are inadequate, then a strategy which is part bluff may be necessary, but it is important for everyone to understand that the strategy is in fact not executable, so that the part which is bluff does not become forgotten and lead to self-delusion. As a case in point, many will remember the 2½ war strategy that lingered on long after it was beyond our capabilities.

Firepower, scouting, and C² are the three elements of naval force—the means—and attrition is the great end. In the background I can hear Peggy Lee singing her song, "Is That All There Is?" Yes, I think that is all.

Of course, the design of a current maritime strategy is not really so simple that it can be built from the bottom up. The process is dialectical, with policy and strategy goals juxtaposed against combat capabilities. But current strategy, I insist, must rest on a foundation of realistic force comparisons.

Perhaps the sense of urgency about tactical considerations will be made more real by starting with this: It is demonstrable both by history and theory that not only has a small net advantage in force (not the same as forces) often been decisive in naval battles, but the slightly inferior force tends to lose with very little to show in the way of damage and destruction to the enemy.

At sea, there has been no counterpart to prepared positions and the effects of terrain, nor anything corresponding to the rule-of-thumb, 3-to-1 attacker-

to-defender ratio. There are no mountains nor swamps to guard flanks, no rivers to cross or defend, and no high ground. A fleet tactical commander keeps no force in reserve and all his energy is devoted to attacking the enemy effectively before the enemy can attack him. At sea, offense dominates in a way foreign to ground commanders. When a tactical commander is not competitive he had better stand clear; because, as I said, he will have little to show for the loss of his force.

In peacetime, every strategist must know the true combat worth of his navy, as compared to the enemy, or he risks deep humiliation with or without bloodshed. That above all was the tactical lesson for Argentina in the Falklands, which found its navy outclassed by the Royal Navy. In wartime, every strategist must know the relative fighting value of his navy—so carefully nurtured and expensive to build and maintain in peacetime. When committed in battle, the heart of a fleet can be cut out in an afternoon.

Three Tactics-Strategy Interrelationships

The fighting power of forces available determines strategic combinations. This does little to explain why tacticians emphasize not only forces as orders of battle but also the very tactics of those forces as elements of sound strategy. The answer lies in the distinction between forces and force—the difference between an order of battle and fighting power at a scene of action against a specific enemy, or what Russian military scientists call the correlation of forces and means. Here are three examples of how tactics and strategy are interrelated. The first example is in the realm of force planning, the Washington arena. The second deals with naval operations, the battle arena. The third illustrates the danger when either the strategist or the tactician lays his plans without due regard for the risks he may thoughtlessly impose on his counterpart.

First, in the US and Nato studies of the military reinforcement and resupply of Europe in the 1960s and early 1970s, classical convoy tactics were used. The escorts formed a ring around the merchant ships. But the ASW screens so configured could not prevent the penetration of many torpedo-firing submarines. The Navy's strategists drew the conclusion that we should buy more ASW protection. Other strategists who toted up the Navy's hardware bill said there must be a better strategy, better meaning less expensive. One solution was to preposition Army divisional combat equipment in Europe and then fly the troops over to marry up with it. No one questioned the soundness of the convoy tactics on which the gloomy losses were based until the early 1970s. Then some work being done concurrently by the Center for Naval Analyses and a small Nato study group at SacLant concluded that if you opened out the merchant ship formation and imbedded the protection inside the convoys, the losses to merchant ships would be reduced by a factor of two or three.

These same studies of the tactical details of the convoy engagements revealed that the submarines ought to be able to find enough targets to unload all of their torpedoes on every patrol, unlike the experience of World War II when the average U-boat fired less than one-sixth of its torpedoes on a patrol. The number of torpedoes carried to sea, therefore, became a number of extreme importance. When the fact was appreciated, a more careful look was taken at the torpedo load of enemy submarines and it was decided that we had probably overestimated it, and in so doing overestimated the damage the subs could do over their lifetimes.

With the estimates of probable losses of merchant ships reduced dramatically, did convoying reenter as the preferred strategy? Not exactly, because there were too many other considerations—political, budgetary, and strategic, affecting the decision. The present attitude toward the desirability of convoying is, in some circumstances yes, in others no. Here the interrelationship with strategy enters the picture. If the maritime strategy described by Robert Wood and John Hanley in the previous issue of this journal is executable, then that will have a powerful and positive effect to reduce the need for convoying. If we are surprised as the allies were in World Wars I and II, then the strategist has some assurance that the tactics are in hand to convoy the most vital shipping—if we must.

Secondly, let us next consider a radically different example of the integration of strategy and tactics that shows up at the interface between land and sea, in what felicitously has been called "littoral warfare." Navies are built and supported in order to influence events on land. It is almost impossible to find an instance of two fleets going out to fight like boxers in a ring—may the best ships win, to the victor goes the spoils and command of the sea. Seldom has the inferior fleet failed to appreciate its inferiority, and so it has been only some matter of gravest consequence which drew the weaker fleet to sea, usually to its doom and with little harm to the stronger.

One of the tactical implications is that the larger fleet in case after case has been burdened with the forbidden sin of split objectives. Look at the 1942-45 Pacific War. Japan or the United States, whichever was superior and on the offensive, almost always entered into battle with prioritized but nevertheless dual missions—to shield the movement of some vital force and to destroy the enemy fleet. The whole Pacific strategy-tactics interface can be studied and understood in that context. The maxim that a fleet should first gain control of the sea before risking an amphibious assault turned out to be impossible to follow, because without the overwhelming strategic consequences of invasion the smaller fleet would not fight. Now look at the sea battles in World War I, in particular those in the North Sea. In this case the battles came about by some subterfuge, a strategic entrapment—the British hoping to lure the High Seas Fleet into a death trap and the Germans hoping to snare some detachments of the Royal Navy, and whittle it down to equality. Since

neither Britain nor Germany had a strategic motivation to come to battle at a disadvantage and since Scheer knew his fleet was decisively inferior, there was never a fight to the finish as strategists anticipated before the war. The German High Seas Fleet ended its days not with a bang but a whimper.

As the range of weapons and sensors increased, so did the direct, tactical interaction between land-based and sea-based forces. In my opinion there is no finer example than the Solomons Campaign of 1942-43 of ground, sea, and air forces all acting in concert, not coincidentally or serendipitously, but necessarily and vitally. A subject worthy of more study is the way these interactions on a wider, deeper battlefield will carry over into the realm of strategy and policy. Land-based aircraft and missiles already reach well out to sea. Sea-based aircraft have had an influence that is well known, and now missiles from the sea will also play a role. One of the tactical lessons of the Solomons is this: We do not plan to put the Marine Brigade into northern Norway merely to hold the land flank, but also to hold the maritime flank. The Marines and their accompanying airpower would fight from a vital piece of real estate that will support operations at sea as well as on the ground. It is hard to find a more apt example of littoral warfare in the making.

Thirdly, as an example, let us look at the Mediterranean, and ponder the problem of the Sixth Fleet Commander. He is very conscious of the need to attack effectively first, but he knows American policy is unlikely to give him the freedom to do so. He also knows that policy has often required a forward, and exposed presence in the Eastern Mediterranean. His survival at the onset of war rests on two *hopes* to offset these two liabilities. The first is that he will be given the freedom of movement in sufficient time to take a geographical position that will make a major attack on him difficult. The second is that his Rules of Engagement will allow him to act with measured force when certain circumstances demand it. Since the steps he must take are in the nature of denying the enemy tracking and targeting information—"antiscouting," a term I will define later—in my opinion both the location he must take and the actions he must be authorized ought to be tolerable at the policy level. Whether the *modus vivendi* now in effect is satisfactory both as to tactics (battlefield risks) and to strategy (political risks) I do not know. But it is important to see the conflict between the statesman's political objectives and the naval commander's tactical risks in a crisis. The tactician at the scene understands the primacy of diplomatic and political objectives. But an optimum political stance, such as a highly visible naval presence, can require a disastrous battlefield posture. The tactician and strategist both need agreement that to contain a crisis, the nation must be able to win twice, both politically and on the field of battle.

In days gone by my solution to the Sixth Fleet's tactical problem was to head west. To solve the strategist's problem of the embarrassment of retreating in the midst of crisis, my strategists were to make clear well in

advance of any crisis that when the fleet withdrew, that was not appeasement but a final war warning, the naval equivalent of mobilizing the reserves. I think now my solution was too pat. But if heading west is not the answer, then the strategist must collaborate with the tactician to find it. The tactical imperative at sea is to attack effectively before the enemy does so. This is simply too compelling a consideration for the strategist to wish away.

How Tacticians Think: The Processes of Naval Battle

Naval tactics derive from four theoretical underpinnings, each of which describes a process.
● Naval warfare is attrition-centered. Attrition comes from the successful delivery of firepower.
● Scouting (to be defined momentarily) is a crucial and integral part of the tactical process.
● Command and control (C^2) transform scouting and firepower potential into the reality of delivered offensive force upon the enemy.
● Naval combat is a force-on-force process involving the simultaneous attrition of both sides. To achieve tactical victory, one must attack effectively first.

Firepower, scouting, and C^2 are the three elements of naval force—the means—and attrition is the great end. In the background I can hear Peggy Lee singing her song, "Is That All There Is?" Yes, I think that is all. Napoleon himself knew how simple naval warfare was. Of his 115 maxims of war, only the last three refer to naval matters. "The art of land warfare is an art of genius, of inspiration," he wrote in his final maxim. "On the sea, nothing is genius or inspiration, everything is positive or empiric. The admiral needs only one science, that of navigation. The general needs all of the sciences, or a talent which is equivalent to all; that of profiting by all experience and all knowledge."

Every Navy reader will detect the irony in Bonaparte's final thrust, but I intend no disparagement of a sour old man venting his frustration against Nelson and the crippling seapower of the Royal Navy. Bonaparte was right. He saw that naval warfare is simpler in tactical essence and the complexity arises in the execution, even as he said, "The qualities required to command an army are born in one, but those to command a fleet are obtained only by experience." It is a venerable truth that seamanship was the first essential of success at sea, and in addition we believe that "on the land men fight with machines, but at sea machines are fought by men."

Of course, the four elements of naval combat are permuted in many ways, rather like physicists and engineers elaborate on and apply Sir Isaac Newton's laws of motion. We should explore a few of these formulations to establish the basis for richer discussions of tactic-strategy interrelationships.

How Tacticians Win: By Attacking Effectively First

Let us shift from viewing firepower delivery, scouting, and C^2 as processes and treat them as elements of naval force. I believe there is an antithesis to each.

Firepower and Defensive Force. The antithesis of firepower is the ability to destroy the attacker's missiles or torpedoes. Call it defensive force. We could talk about offensive and defensive power, but it is a useful cue to retain the asymmetry of defensive force as the defender's response to firepower. Navies historically (less evidently today) responded to enemy firepower by building survivability into the hulls of warships, which was called staying power in the days of the 16″ guns and 12″ armor belts.

Scouting and Antiscouting. In order to discuss the antithesis of scouting, which I will simply call antiscouting, it is time to define the basic term. Scouting is information gathering by any and all means—reconnaissance, surveillance, cryptanalysis, or any other type of what some call information warfare. But the scouting process is not complete until the information is delivered to the tactical commander. The correct image of a scout is J. E. B. Stuart riding up to Robert E. Lee and saying, "I have seen Joe Hooker starting to cross the Rappahannock at Germanna Ford and he will not be across for three more hours." Scouting is delivered tactical information about the enemy's position, movement, vulnerabilities, strengths, and (in the best of worlds) intentions.

Naval scouting consumes a lot of resources. A quarter, no less, of the British Grand Fleet and German High Seas Fleet at Jutland (measured in major caliber guns) were in the two scouting formations. If Beatty had thought more of his role as scout and screen for the Grand Fleet and less of his own firepower, he would have saved Jellicoe a great deal of tension later at "Windy Corner."

We may think of tactical scouting as consisting of four elements: detection, tracking, targeting, and post-attack damage assessment. The first three—detection, tracking, and targeting—form a chain, with as much redundancy built into the chain as possible. Antiscouting is actions to break the chain, or more commonly, to retard the enemy's rate of accumulating targeting information with sand in the eyes or smoke in the face. We could call this interference "screening," except that screening has come to be used ambiguously, denoting both antiscouting and defensive force (viz ASW or AAW Screens).

Command and Control, and Command and Control Countermeasures. Command decides what is wanted from the forces, while control transforms the want into realization. Communications (as signals) is embodied in control, indeed it is the principal instrument of on-the-scene control. As we saw, C^2 operates on its forces to scout, and to position and deliver firepower.

Command and Control Countermeasures (C^{2}CM) are the steps to limit the enemy's ability to decide (command) and disseminate decisions (control). Among some naval officers that is an unfamiliar and narrow definition. It is not anything that needs to be explored here. What is important is to think of each tactical commander allocating his forces among four functions:

Firepower	Defensive force
Scouting	Antiscouting

Meanwhile, the enemy commander is doing the same thing. Some, perhaps most, weapons systems from a fleet commander's point of view can be used for more than one purpose, and so an allocation of forces among these four roles is a major decision of his. One of the fascinating stories of these allocations is the evolution of US and Japanese carrier deckloads among fighters, scouts, and bombers through World War II, and how the tactical commanders split their assets among reconnaissance, attack, fighter escort and combat air patrol.

As the two opposing commanders make their allocations and deploy for battle, they are simultaneously making positioning and timing decisions. A naval battle "starts" well before the first weapons are fired. Both are taking a series of steps building toward a climactic decision, in which the winner will be the force which attacks effectively first.

What Tacticians Learn by the Study of History: Trends, Constants, and Contexts

Naval officers have not found the principles of war very stimulating. A more useful approach is to look for *trends*, such as the expansion of weapon range, the growth of battlefield dimensions, and the rise in importance of cryptanalysis. Concurrently, look for *constants*, such as the value of concentrated firepower, the key role of proper tactical doctrine, and the preeminence of sound leadership. In addition, one must see that the value of any study or research is limited by unpredictables: *contexts,* such as forces assigned, the weather, and matters of missions and tasks, all of which do not become clear until the battle is in the offing.

One must study the history of tactics to ascertain trends: what has changed, the constants or what has not; and the contexts, what is event-dependent. Here is a quick glimpse at four periods and the changes in the attrition processes that took place.

The Age of Fighting Sail, 1550-1810. Because the effective range of naval gunnery was under a half mile, it was impossible to concentrate more than two sailing ships on one of the enemy. Even that was rare against a well-organized, tightly spaced enemy column. So, concentration of firepower was built into the ship of the line herself by adding more decks of guns. Moreover, it was well understood that when both ships were handled competently, a

three-decker would not only destroy a two-decker, but the latter would lose without having done much damage to the former. A 3:2 advantage in firepower was overwhelmingly decisive.

The Big Gun Era, 1890-1930. By contrast, when the effective range of guns opened to eight or ten miles early in the twentieth century, it was possible to concentrate the firepower of the entire battleline. The focus of the tacticians of the period was on ways to concentrate the fire of his whole line on a portion of the enemy's line. "Capping-the-T" of the whole enemy battleline was the dream of every battleship admiral. Moreover, the advantage did not have to last for very long. Under conditions of good visibility, a ten-minute initial advantage would be decisive. It was further observed that a force advantage even as small as 4:3 would be decisive. Bradley A. Fiske (1905) and a Frenchman named Abroise Baudry (1914) showed how this worked with successive salvos. A little advantage rapidly became greater as the weaker force sustained damage at an increasingly greater relative rate. They called this the N-square effect. Lanchester (1915) transformed their laborious salvo calculations into simple, coupled differential equations.* He did so merely to illustrate the principle of cumulative disadvantage in a more elegant way, using his square-law equations. Almost simultaneously, the Russian Osipov (1915) discovered the Lanchester form, apparently on his own, and wrote 60 pages of analysis, including the comparison of theory with historical battles.

   Baudry and Fiske illustrated with tables such as the one below. Sides A and B are two identical forces each with the firepower to reduce the enemy at the rate of 5 percent per minute. The table shows that if you give side A a mere four-minute advantage in opening fire, side B will be destroyed while side A retains more than half (57 percent) of its fighting power.

	Units of Residual Firepower and Staying Power	
End of Minute	**Side A**	**Side B**
0	10	10
2	10	9
4	10	8
6	9.2	7
8	8.5	6.08
10	7.89	5.23
12	7.37	4.44
14	6.93	3.70
16	6.56	3.01
18	6.26	2.35
20	6.00	1.72
22	5.83	1.12
24	5.72	0.54
26	5.67	0

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*See Theodore C. Taylor, "Tactical Concentration and Surprise—In Theory," *Naval War College Review*, May-June 1985, pp. 41-51.

Baudry and Fiske built similarly simple tables to show the cumulative effect of preponderant force. Let A now have two warships to concentrate on one of B. Under the same conditions as before of firepower and staying power, the table of surviving fighting power looks like this.

	Superior Side A			**Side B**
End of Minute	**Ship A$_1$**	**Ship A$_2$**	**A$_1$ + A$_2$ Force**	**B Ship**
0	10	10	20	10
2	9.5	9.5	19	8
4	9.1	9.1	18.20	6.1
6	8.79	8.79	17.58	4.40
8	8.57	8.57	17.14	2.70
10	8.43	8.43	16.86	1.00
11.19	8.38	8.38	16.70	0

A "firepower kill" on Side B is achieved in only 11.2 minutes (unopposed it would take Side A 10 minutes), and Side A has 16.7 or 83 percent of its fighting power remaining. If the Lanchester "continuous fire" form is used, side A's surviving fighting power is slightly greater, 17.3 instead of 16.7. The reason is similar to the reason that compounding interest daily yields slightly more return than compounding annually.

The Age of the Aircraft Carrier, 1942-1975. In World War II, an attack by a carrier's air wing of dive bombers and torpedo bombers had the effect of one great salvo of the whole of a carrier's firepower arriving on the enemy in a pulse of destructive force. As a result, whichever carrier fleet commander attacked first did great damage. So for damage assessment it was either

    A strikes B first, or
    B strikes A first, or
    A and B strike simultaneously.

A crucial question was, how much damage could an air wing do? No matter how lacking the consensus was before the war about battleship survivability, by the late 1930s there was common accord that a CV was a vulnerable target. For the moment, we will assume that one carrier's air wing had the net delivered firepower to sink one carrier in one attack. The theoretical results are displayed in this table:

Aircraft Carriers—Pulsed Power
Initial Number of Carriers (A/B)

	2/2	4/3	3/2	2/1	3/1
A Strikes First	2/0	4/0	3/0	2/0	3/0
B Strikes First	0/2	1/3	1/2	1/1	2/1
A and B Strike Simultaneously	0/0	1/0	1/0	1/0	2/0
Lanchester	0/0	2.6/0	2.2/0	1.7/0	2.8/0

When the stronger force, A, attacks first, the consequences are obvious and devastating. However, when the weaker force, B, succeeds in attacking first, then we see in the row "B Strikes First" that the inferior force can be outnumbered by as much as 2:3 and accept the disadvantage and win.

In the Pacific Ocean carrier battles in World War II, more frequently than not both sides located the other and launched their strikes before the enemy attack arrived. Under our as yet uncorroborated effectiveness assumption of one-for-one, the outcome should be as shown in the row, "A and B Strike Simultaneously." If we inspect the A/B = 3/2 column, we may readily see the dramatic way the outcomes change under the "Pulsed Power" model from the Lanchester (continuous fire) model of naval battle. In the carrier battle paradigm, A and B both lose two carriers and the outcome leaves A with one carrier and B with none. If both sides had been firing continuously, then the square law would have taken effect for the superior force, and A would have destroyed B while suffering little damage, expecting over two-thirds of his forces to survive (in the "Lanchester" row, see "2.2/0").

What happens when force A is able to counterattack after first sustaining a surprise attack by B? The theoretical results (again under our one-for-one hypothesis) are shown in the next table. We see that B, even when outnumbered 3:2 by A, a disadvantage that is overwhelming under continuous fire, will emerge from the battle with the same number of survivors ("1/1"). But, I emphasize, only if B were able to attack effectively, first.

Results After A Counterattacks

Initial Force (A/B)	4/3	3/2	2/1	3/1
Survivors (A/B)	1/2	1/1	1/0	2/0

Thus far the pulsed power model has been described as pure theory. What are the facts? To calibrate the carrier effectiveness model, I reviewed the five great carrier battles in the Pacific War—Coral Sea, Midway, Eastern Solomons, Santa Cruz Islands, and Philippine Sea. (The Battle for Leyte Gulf was not carrier vs. carrier, but a series of surface actions, sprinkled liberally with land-based and sea-based air attacks on gun ships.) None works out more handsomely than the Battle of Midway. The next table shows the initial forces and final results, with aircraft survivors thrown in for a bit of detail (carrier aircraft losses were brutal in all of these battles). The Japanese started with four carriers and ended with zero, because of American skill, courage, and luck which resulted in the first effective attack. The US Navy started with three carriers and ended with two.

Midway (June 1942)
Battle Synopsis

		Initial Forces		Actual Survivors	
		CVs	Aircraft	CVs	Aircraft
A.	Japan	4	272	0	0
B.	United States	3	233	2	126

The results are the same as theory would have predicted when calibrated at the one-for-one level of effectiveness. We see this in the next table. We let the Battle of Midway evolve as it did, in three steps: inferior B (the United States) attacked superior A (the Japanese) first and sank three carriers. After absorbing the attack, the remaining carrier of A counterattacked B and sank one carrier. Then in one final reattack, B attacked A and sank its last carrier.

Theoretical Survivors

		After US Strike	After Japanese Counterattack	After US Mop-Up
A.	Japan	1	1	0
B.	United States	3	2	2

The four other Pacific carrier battle results are similar. The pulsed power model, for all its simplicity, is an accurate descriptor of the carrier battles in 1942, under the assumption that the net destructive firepower of a carrier air wing was the capacity to sink one carrier in one attack. It may surprise some that as the war progressed, it took *more* than one air wing's attack to sink a carrier. In a mere two years, between December 1941 and the end of 1943, warships had built up their staying power and expanded their antiair warfare "defensive force" by 100-fold, as Bernard Brodie noted at the time.

Finally, the point needs to be emphasized again that it was superior scouting that allowed the first effective attack. Proportionately more resources are being devoted to detecting, tracking, and targeting the enemy. Also as a predictable trend, commanders at sea are going to devote more and more of their time and energy to the scouting process as opposed to firepower delivery.

Modern Missile Warfare, 1985. One thing that is plausible, if not probable, about modern naval combat is that some of today's warcraft carry "more than their weight" of deliverable firepower. Hypothesize a missile ship that has the net offensive capability to achieve a firepower kill on three identical enemy ships. We can draw up a chart similar to the one-for-one kill capability of carrier air wings which we used to describe the big Pacific battles in World War II.

Modern Missile Effect—Conjectured 3-for-1 Firepower
Initial Number of Ships (A/B)

	3/3	3/1	N/1
A Strikes First	3/0	3/0	N/0
B Strikes First	0/3	0/1	(N–3)/1
A and B Strike Simultaneously	0/0	0/0	(N–3)/0

With this simple table, we illustrate the paradigms of:
* What US and Japanese carrier air proponents *believed* would be the effectiveness of an airstrike in 1941,
* the often-held image of modern missile effectiveness with conventional warheads at sea, and
* the universally agreed image of modern nuclear warfare on land and at sea, in the absence of much improved (and some would say scarcely imagined) defensive force.

Although we have not the space here to develop all the logic of the case, a major conclusion is that when such a multiple kill capability exists, there are strong reasons to disperse forces and no reasons to mass them. The commander's goal is to concentrate firepower through modern communications and tactics, while operating from a dispersed disposition.

Tactics and Conventional Naval Combat

When the naval war is nonnuclear, the case for dispersal can be overstated. Without developing the model here, I believe two things continue to have a centripetal effect on naval formations in conventional war—the bread-and-butter environment of the great bulk of the world's warships.

One is scouting. Aggregated scouting capacity of the force may prove decisive in finding the enemy first, leading to first effective attack. In this instance, the aggregation of forces under a united command aims for superior scouting rather than superior firepower.

The other is defense. It may be the best tactic to mass defensive potential, enough to beat off any attack under the local circumstances in space and time. The modern decision to mass naval components together is not for the purpose of aggregating firepower, but to aggregate defensive force.

As far as the US Navy is concerned, our firepower is concentrated in very large ships. To offset the "modern missile effect," our fleet must have either a better firepower-scouting combination to reach out and strike first, or adequate defenses to stop the enemy first strike with residual firepower sufficient to let our counterstrike be decisive.

Evidently, the modern US battlefleet with its large hunks of firepower and strong AAW and ASW defenses implicitly plans on the second method, adequate defensive force. Here are four implications:
* US Navy carrier battle force attacks will be overt, but will employ antitargeting tactics.
* The massing of battle groups in mutual support is a tactic we will use for defensive reasons.
* To see whether a carrier battle force should attempt the operation, it is necessary to correlate the forces on both sides with capable analysis of all

eight elements: comparing our own firepower, defensive force, scouting and antiscouting capacities against those of the enemy.

●   When the carrier battle force is not strong enough to fight its way in, it should not attempt the operation.

Tacticians Fight with Mind, Body and Spirit

My topic deals with the intellectual relationship between tactics and strategy. Nevertheless, the arena of the tactician is one of mortal danger, and that distinctiveness warrants some brief comments. Some of my friends believe that no modern tactical commander of a fleet at sea can be successful without knowing the technological details of his ships, aircraft, and missiles. This is conventional Navy wisdom as I have known it. While the statement is true in literal fact, enchantment with weapon or propulsion engineering and knob twisting is a snare that has trapped the US Navy officer corps in the past and may have us hooked even today.

Except for Adm. Arleigh Burke, I can think of no living American naval officer who is qualified from experience to contrast the qualities of commanders of fleets in combat with those of outstanding strategists. Yet, I believe that I can trace the evolution of the naval battlefield thoroughly enough to conclude that there will be even heavier demands on tactical commanders for sustained moral courage under pressure for weeks on end. Look for the combat environment of the Battle of Okinawa and its prolonged kamikaze attacks, as well as Bekaa Valley and its swift decision.

The tactician's style and frame of mind is not so different from the way of the warrior described and practiced by Miyamoto Musashi. The soldier's method, or form (badly mistranslated as "strategy" in *A Book of Five Rings*) has two parts: first, a bearing in all things, steady, relaxed, unremitting, alert, and vigilant without tension or paranoia. In battle, the warrior anticipates his enemy because he has studied him and understands him. Second, the warrior attacks to "cut" the enemy with essential simplicity. It is necessary to master only five strokes ("attitudes") and there are none but these five. Musashi also would say, "that's all there is." And flowing through the fiber of the book is the abiding theme of self-discipline, training, and practice, all as a single river of life-devotion.

The elegant simplicity of Musashi's "five cuts" extends beyond the training of the individual warrior. The tactician knows he must prepare his men for collective action. To do so in a very large organization requires massive continuity of training. A major revision of established methods is not something to be undertaken lightly. The notorious conservatism of the Navy is more understandable when one realizes that a technological or doctrinal transition is a major shift of momentum, more complicated in the execution—because of the retraining of many people—than even a change in

policy or strategy. Beyond that, a tactical commander must transform general methods—fleet doctrine—into a particular battle plan, his operation order. The best battle plans look almost absurdly simple and rather obvious after the fact. But their very simplicity is a distillation of considerations without end. Successful statecraft and strategy seem to me to rest on complexity: labyrinthine in their deliberate ambiguity, interlocking, multi-faceted elements, multiple echelons of reasoning, and depth of meaning. Successful tactics rest on simplicity: bringing control, unity, and order out of the ominous, lurking potential for chaos.

I may not have characterized fully how strategists perform their responsibilities. But I draw your attention to the essential asymmetry between strategy and tactics and the products of each. Strategists plan. Tacticians fight. You *have* a strategy. You *do* a tactic. There is something more physical and more spiritual in the tactician's realm. Perhaps that is why Douglas Southall Freeman said it is hard to predict who will succeed and who will fail in battle. Strategists need to know how tacticians succeed, even though strategists cannot do much more in peacetime than keep promising officers at sea sufficiently to nourish their proficiency and allow them to build up sound combat doctrine and train the fleet.

A Prescription: Consult Your Tactician

The beginning of this century was a Golden Age of tactical thought. In many countries, naval *tactics* (not strategy) dominated the writings of naval officers. From 1895, for two decades our Naval Institute *Proceedings'* prize essays were a whole succession of papers on tactics. Why was this so? Probably so much was written about battle because so few battles were fought. In a time of technological ferment that rivals even our own as to tactical consequences, naval officers debated the implications of the ram, torpedoes, better fire control, steam, wireless and the race between guns and armor. As a result, when World War I came there were very few tactical surprises and, in fact, most of the surprises wrought by naval technology were in the field of strategy—the distant blockade, the virtual end of the surface raider, and the rise of the U-boat as a war winning threat, were examples.

Therefore, it seems fitting to close with reference to the *Proceedings* 1905 Prize Essay by (then) Comdr. Bradley A. Fiske. Fiske entitled his essay "American Naval Policy." In it, he devoted no less than 24 of 80 pages to tactics, including the rich mathematical illustrations aforementioned of the cumulative effect of firepower. Fiske was an archetypal modern naval officer in four respects:

- He knew technology.
- He espoused tactical computations—operations analysis in its original sense.

● He argued that both would improve tactics, and tactics won battles.

● He saw that the capacity to win battles determined, in the end, a successful national strategy and policy.

As he said: "No naval policy can be wise unless it takes into very careful account the tactics that ought to be used in war; in order that the proper kinds of ships may be built and the proper kinds of organizations, drills, and discipline be devised to carry those tactics into good effect." The Navy has, in the last five years, revitalized interest by its officer corps in modern tactics, and when this interest is reduced to writing and new tactical doctrine falls into place, then there will be important effects on American military strategy, organization, and administration.

In this paper, first we saw, with Clausewitz' coaching, that current strategy in any war rests on genuine battlefield capability; followed by the knowledge of who should win if a battle takes place.

Last we saw, with the forceful advice of Bradley Fiske, that new weapons and winning tactics must fit like hand in glove, and all the military panoply of organization and training in peacetime in the last analysis should be designed to win battles.

In between, we acknowledged that strategy and tactics are companions-in-arms, influencing each other. And because of the need to establish more common ground between tactical thought and strategic planning, I have offered some tactical propositions—both as to theory and as to modern practice. The elemental processes of naval combat are firepower, scouting and C^2, along with their antitheses, defensive force, antiscouting, and C^2CM. Each opposing tactical commander deploys his force components at sea in a coherent, integrated way, with the objective of attacking the enemy effectively first.

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Editor's Note

Our last issue featured an article by Robert S. Wood and John T. Hanley, Jr., titled, "The Maritime Role in the North Atlantic." This work appeared through the courtesy of the Center for Naval Analyses and is included in a larger work: James L. George, ed., *The U.S. Navy—The View from the Mid-80s* (Boulder, Colo.: Westview Press, 1985).