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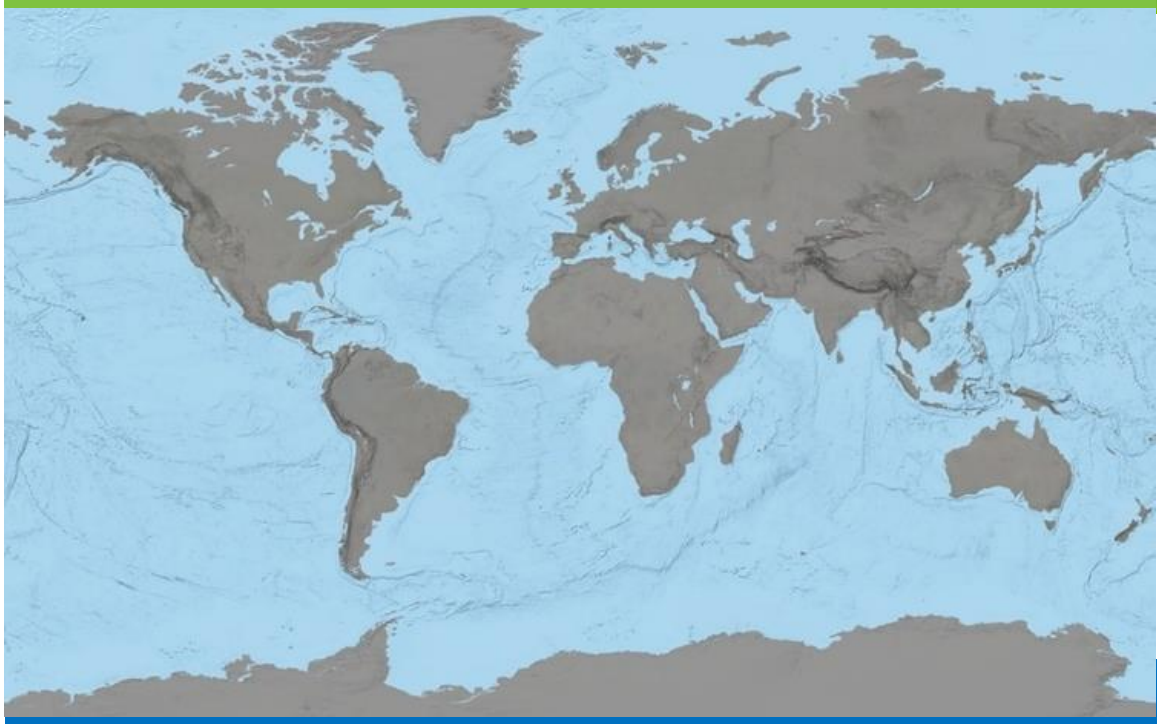

Sea Changes: Transforming U.S. Navy Deployment Strategy, 1775–2002

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Abstract

This paper, written in 2002, examines the many changes in U.S. Navy strategic and operational history over time, focusing on the Navy's deployment strategy. From this examination, it draws insights, options, and conclusions for today's Navy, providing useful context and perspective. Its goal is to help inform debate and discussion about the present and future Navy.

The content of this paper is current through 2002.

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Summary and overview

Background

This paper examines the many changes in U.S. Navy strategic and operational history over time, focusing on the Navy's deployment strategy. From this examination, it draws insights, options, and conclusions for today's Navy, to provide useful context and perspective.

This study was written to help inform debate and discussion about the present and future Navy. We call it *Sea Changes* to highlight its principal finding and to emphasize its contemporary relevance. It is, however, also intended to remain of value to future decision-makers and planners once current U.S. Navy planning is itself part of history.

Major insights, options, and conclusions

- The roots of current U.S. Navy deployment strategy can be traced back to the late 1940s, when Secretary of the Navy James Forrestal, Admirals Forrest Sherman and Arthur Radford, and others deployed what became the Sixth Fleet to the Mediterranean and later a reborn Seventh Fleet in the western Pacific, as combat-credible forward presence forces. The efforts of Admiral Elmo Zumwalt and others at the beginning of the 1970s made the Seventh Fleet a forward-based as well as forward-deployed force. At the end of the 1970s, a third combat-credible forward presence "hub" was created in the Arabian Sea. Meanwhile, precedents of intermittent forward presence were established and maintained in many other forward sea areas, and continued in America's "near abroad" in the Caribbean.

- The combat-credible forward presence strategy has been the product of the domestic power and interests of the United States, the world environment within which the United States must live, and the human and technological capabilities of the U.S. Navy and other United States national security institutions.

- Prior to the late 1940s, the Navy followed many other deployment strategy models, including periodic surges from the United States for diplomacy or

combat, permanent forward stations scattered around the world, round-the-world cruising, and maintaining fleet combat readiness at home while positioning a few forward stations abroad.

- As with the post-World War II combat-credible forward presence posture, each of these deployment strategies was the product of the domestic power and interests of the United States at the time; the world environment within which the United States had to live; and the human and technological capabilities of the U.S. Navy and other American national security institutions of the times.

- Navy deployment strategies have co-existed with planned Navy employment strategies, actual employment strategies, procurement strategies and organizational strategies. Sometimes the alignment among these various strands of Navy strategy has been tight, and sometimes not. There was often a disconnect between the planned employment strategy of the Navy for war, and its actual peacetime employment strategy. Often the Navy's deployment strategy aligned well with the latter, but was quickly reconfigured to align with the former when necessary, demonstrating the inherent flexibility of U.S. Navy forces.

- In particular contrast to the current era is the period between the two world wars, when a Navy deployment strategy of recurrent large-scale exercises in home waters was well aligned with the Navy's planned wartime employment strategy, and undistracted by the pull of a different actual peacetime employment strategy.

- Examples of *coordinated* U.S. Navy operations with the U.S. Army and other armed services abound in history, as do examples of U.S. Navy participation in ad hoc coalitions operations. Army, Navy and other service officers also served on numerous joint boards together throughout their histories, and exercised frequently together starting in the 1880s. That having been said, *integrated* joint operations seldom took place before World War II, and could not be considered central to how the U.S. Navy deployed until the 1990s. Integrated allied operations, on the other hand, became quite common for the U.S. Navy ever since the creation of the Cold War alliance systems in the early 1950s.

- There was no period in the history of U.S. Navy deployment strategy when innovation was not occurring in the Navy. Periods with deployment strategies as disparate as those of the 1850s, 1890s, 1930s, 1950s and 1990s all saw enormous changes and great innovation in the fleet.

- Homeland defense has seldom attracted the Navy, and seldom been required to. The Navy's posture since its earliest days has normally been forward, or trying to get forward. This has in part been due to an often low threat level at or near home; a normal Navy strategy of countering threats forward; and the existence of numerous other U.S. armed forces—especially the Army and Coast Guard—with homeland defense interests and responsibilities.

- The U.S. Navy has always been employed for power projection ashore as well as sea control. Coupled with a normal deployment strategy of forward operations, this employment strategy has always required sea bases for naval fires, strike aviation, logistics, surveillance and command and control. Sea basing reached its apotheosis in the U.S. Navy during the last year of World War II in the western Pacific, when huge carrier, amphibious, naval gunfire support, and mobile logistics forces provided a sea base to help overwhelm Japan. Since that time, the Navy has deployed a whole range of technologically advanced sea-based platforms.

- A major transformation of the Navy's deployment strategy does not appear to be on the horizon. There have not been recent or contemporary changes in the three important variables—domestic interests, international environment, and naval capabilities—revolutionary enough to change U.S. Navy deployment strategy on the scale of the truly transformational changes occurring at the beginning of the 20th century or the end of World War II. Nor do such changes appear likely in the near future. Some variant of combat-credible forward presence seems to be optimal for the United States and its Navy for the foreseeable future.

- This does not mean that the Navy cannot or should not change, or that those changes—on operational, tactical, platform or force package levels—will not be transformational. But it does mean that transformation of the Navy's overall deployment strategy—which is its central organizing concept as an institution—is not likely to change soon.

- A variety of possible alternative future models of U.S. Navy deployment strategy can be derived from an examination of the record of the Navy's past deployment strategy. We have done so, by showing how past models can be updated to fit current forces. This analysis, however, yielded on balance little benefit to transforming the current deployment strategy.

- The U.S. Navy has been, and will probably remain, an ever-changing and highly operational force, with a bias toward forward deployment, an understanding of the requirements for sea basing, and a never-ending capacity to experiment and to absorb innovation rapidly.

I. Introduction

"The farther backward you can look, the further forward you are likely to see."

–Winston Churchill

Ten questions

This paper sets out to answer ten sets of questions:

- What are the origins of the current U.S. Navy deployment strategy of combat-credible forward presence in three hubs?
- What other deployment strategies has the U.S. Navy followed, and why?
- How has deployment strategy been aligned with the planned and actual employment strategy, procurement strategy, and organizational strategy of the Navy?
- How has U.S. Navy deployment strategy been integrated in joint and coalition strategy?
- What relationship, if any, has there been between U.S. Navy deployment strategy and innovation?
- What has been the place of homeland defense in U.S. Navy deployment strategy?
- What has been the place of sea basing in U.S. Navy deployment strategy?
- Is the U.S. Navy's deployment strategy on the verge of transformation?
- How can the record of Navy deployment strategies from the past be used to illuminate choices about changing the Navy's deployment strategy in the future?
- What other observations and conclusions can be drawn from analyzing the U.S. Navy deployment strategy record?

Each set of questions is potentially of enduring importance as well as topical in 2002.

Context and purpose

In June 2002, the U.S. Navy's Chief of Naval Operations, Admiral Vern Clark, unveiled the framework of a new operational vision for the United States Navy: "Sea Power 21."[1] This framework was further developed the following month with the publication of the *Naval Transformation Roadmap*.[2] Both documents emphasized three required naval

capabilities: "Sea Strike", "Sea Shield", and "Sea Basing." They also described three Navy implementing initiatives: "Sea Trial," "Sea Warrior," and "Sea Enterprise."

Admiral Clark's presentation and the *Naval Transformation Roadmap* were both directive and discursive. That is, they provided guidance and a unifying "way ahead" to the Navy, but they also stimulated—by design—debate and discussion on U.S. naval policy and strategy among joint, Navy and other national security affairs professionals and students.

This study was written to help inform debate and discussion about the present and future Navy. We call it *Sea Changes* to highlight its principal finding and to emphasize its contemporary relevance. It is, however, also intended to remain of value to future decision-makers and planners once "SEAPOWER 21" and the *Naval Transformation Roadmap* are themselves part of U.S. Navy history.

The bulk of the paper examines the many changes in U.S. Navy strategic and operational history. From this examination, it seeks to derive useful conclusions, insights and options for today and tomorrow's Navy, to provide context and perspective.

The challenge and the response

Using insights drawn from history may not be every decision-maker's—and certainly not every *Navy* decision-maker's—instinctive predisposition. The U.S. Navy's own recent analysis of the role of Navy history at the end of the 20th century began with the words: "Over the past quarter century, history in the U.S. Navy has become isolated, undervalued, and unappreciated." That analysis went on to note that "the Navy did not see the lessons of the past as having relevance to decision-making" and that "in comparison with the other services, particularly the U.S. Marine Corps, the Navy as a whole undervalues and underutilizes its history." [3]

That analysis called on the Navy to revive its production and use of "applied naval history." In response, *Sea Changes*—sponsored by the Naval Historical Center and written in liaison with key staff offices in the Office of the Chief of Naval Operations (OPNAV)—seeks to provide context and perspective for "Sea Power 21," the *Naval Transformation Roadmap*, and similar future Navy policy and strategy documents. [4] It also demonstrates the possibilities of applied naval history in informing the work of naval staffs and others during the first decade of the 21st century.[5]

Why Navy deployment strategy is the framework

Sea Changes principally analyzes the history of the U.S. Navy's global deployment strategy. It does so because deployment strategy is a major focus of contemporary joint and naval policy-makers, strategists and planners; and because the new naval force packages

proposed in "Sea Power 21" and the *Naval Transformation Roadmap* may well necessitate innovative decisions on how they will be deployed. "Sea Power 21" asserted, for example, an intent to "spread the striking power and presence of the United States Navy and the United States Marine Corps team more widely around the world".

A deployment strategy stressing global combat-credible forward presence was the central organizing principle of the U.S. Navy in the first post-Cold War decade.[6] This deployment strategy proved its utility during the 1990s. It also exhibited some strains, however, as the Navy and the nation sought to keep powerful and combat-ready forces forward-deployed as much as possible in three major hubs, with occasional additional deployments elsewhere, using a fleet that was shrinking to 315 ships.

Perceived changes in the world situation, national requirements, technology and other factors have caused some joint and naval decision-makers, planners, and analysts to reflect on that deployment strategy and consider alternatives.[7] *Sea Changes* is designed to distill some conclusions and alternatives from the Navy's entire deployment strategy experience, to assist decision-makers, planners and analysts. Along the way it seeks to illuminate several other important contemporary naval strategy issue areas as well.

Deployment strategy and other forms of strategy

Strategy links military means to national policy ends. It describes how policies are to be carried out, using the country's armed forces.[8] It can take many forms. Examples include:

- Declaratory strategy: What the country says it does with its Navy
- Procurement strategy: What the country buys (or discards) for its Navy
- Planned employment strategy: What the country plans to do with its forces
- Actual employment strategy: What the country actually does with its forces
- Organizational strategy: How the country organizes its forces
- Deployment strategy: Where a country positions its forces on the globe

Ideally, these strategies are all well aligned and mutually supporting. Because each is driven by a different influence set and player mix, however, reaching this ideal is difficult.[9]

As noted earlier, *Sea Changes* principally analyzes *deployment strategy*, but it also seeks to show relationships and alignments among deployment strategy and other types of strategy. It is a premise of *Sea Changes* that, in actual practice, these strategies exist side by side, despite their often being explained and taught as if they occur in a linear progression.[10]

Approach, scope and caveats

The approach we took was straightforward:

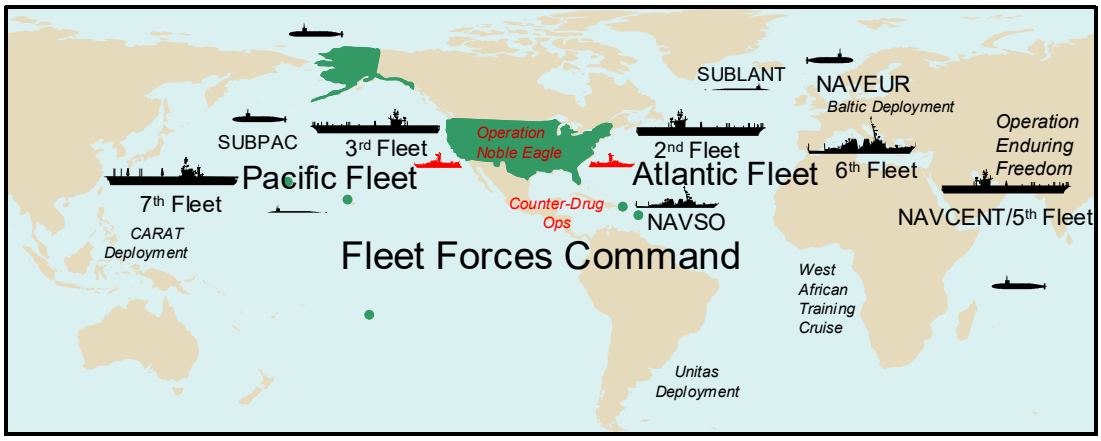
- Through discussions with Navy staff officers, perusal of draft and final Navy documents, and wide reading in the contemporary professional national security affairs press, we identified salient issue areas of concern to naval decision-makers and planners of the first decade of the 20th century listed above.
- We then examined numerous existing accounts of U.S. Navy history to trace the evolution of these issue areas back through time.
- We then retold the Navy history story to highlight those particular areas, using deployment strategy as our template.
- Finally, we analyzed our findings and drew some insights and conclusions.

The resulting paper is:

- **A broad but compressed history.** It shows the unfolding of U.S. deployment strategy over time as a continuous story.[11] It is not intended to be detailed.[12] Extensive endnotes give substantive and bibliographic data for further detail and as guides to further study.
- **An example of applied (or practical) history.** This is neither academic nor popular history.[13] It is designed to help busy decision-makers and staffs and to instruct students of national security strategy, rather than to help understand the past *per se*, or to inspire or entertain.
- **An examination of the strategic level of military operations.** It covers the range of military operations, not just war. It discusses—but does not dwell on—the broader aspects of national security strategy, including the political uses of military operations and civil-military relations. Nor does it examine closely the operational or tactical levels of operations, nor technology—beyond identifying some key innovations.[14]
- **Focused on the U.S. Navy.** The other U.S. armed services, as well as foreign military and naval forces and joint and combined operations, are discussed as they inter-relate with the Navy.[15]
- **Based largely on secondary sources.** Its originality and utility lie in its organization of historical data, and its analyses and interpretations. It does not purport to have unearthed any new primary sources. [16]
- **Unclassified and cleared for public release** to ensure wide dissemination among joint and Navy staff officers, students of national security affairs and strategy, and national security affairs analysts.
- **An almost unique contribution.** There have been few similar analyses.[17]
- **Only a beginning.** While we have laid out as much of the relevant data and its sources as we could find, we know that our analyses of that data have only scratched the surface. We hope that *Sea Changes*—far from providing the last word on the subject—will form the basis for further study and analysis.

Baseline: U.S. Navy deployment strategy at the start of the 21st century

Sea Changes views the U.S. Navy's recent and current deployment strategy as the central organizing concept of the Navy as an institution. It will be useful to review the main elements of that strategy briefly before examining those of the past.



In 2002 the U.S. Navy was the world's pre-eminent naval force and had been so for about six decades. It comprised over 300 warships and considerable numbers of aircraft and sealift and other auxiliary vessels.[18] Most of those ships not undergoing extensive maintenance and repairs were assigned to one of the two great geographical fleets—the Atlantic and Pacific—and deployed in one of the five numbered fleets—the Second, Third, Fifth, Sixth and Seventh. The first two of these normally operated off the East and West coasts of the 48 contiguous United States—mostly to train and experiment, but also to provide surge forces if needed farther forward, and for homeland defense. The other three fleets—the Fifth, Sixth and Seventh—deployed forward in three "hubs": The Persian Gulf and Indian Ocean, Mediterranean, and Western Pacific respectively. Some smaller forces also occasionally deployed forward to other areas, especially in the Caribbean.[19]

This deployment pattern had been generally in place for over a decade. It was, in fact, not much different from patterns exhibited by the fleet for most of the more than five decades that the United States has deployed the world's leading Navy.

In 2002, the Navy Department that organized, trained and equipped the forces to carry out this deployment strategy included over 380,000 U.S. Navy officers and enlisted personnel, 173,000 Marine Corps officers and enlisted, and 183,000 civilians. The Department's annual budget stood at over $100 billion dollars—more than the budgets of either the Departments of the Army or Air Force.[20] It was also more than thirteen times the size of the budget of the U.S. Coast Guard, a maritime armed force of over 200 cutters, 1400 boats, 200 aircraft, and 36,000 people, assigned to the U. S. Department of Transportation.

How the U.S. Navy got to this strategic deployment posture is the subject of the next chapter of this paper, which will provide more detail on that posture as well.

Using the insights, options and conclusions

While this paper offers numerous analyses, insights, comparisons, options and conclusions, it does not offer specific policy prescriptions. While the scope of this paper is vast, it would have had to have been even vaster still—and far more detailed—in order for us to have derived precise recommendations from it.

That said, *Sea Changes* will nevertheless prove useful to joint, naval and other defense policy-makers, planners and staffs, and students of joint and naval policy, strategy and operations. Specifically, it will help enable them to:

- Gain essential context and perspective.
- Appreciate the range of alternatives open to them
- Understand the factors that drive determination of strategy
- Dispel current myths and false claims based on poor readings of history
- Learn where to go for more information and deeper analyses
- Conduct or commission further and more advanced research and analyses

Outline and format

Sea Changes is broken into ten chapters.

- Chapter I is this introduction
- Chapter II traces the history of the U.S. Navy, using deployment strategy as the central organizing concept. It divides that history into 25 periods, each characterized by a particular strategic fleet deployment pattern. For each era, it describes the causes and nature of the fleet's deployment, as well as its size, organization, most important operations, and joint and combined relationships.
- Chapter III briefly describes major transformations and innovations that occurred in each of the 25 deployment periods, draws some conclusions and makes some observations
- Chapter IV explores the changing relationships among deployments, innovation and exercises in the U.S. Navy over time
- Chapter V traces the role that sea basing has played in U.S. Navy deployment strategy
- Chapter VI analyzes U.S. Navy deployment history to determine those changes that were indeed transformational, and provides some insight

regarding the potential for further transformation in the present and near future.

- Chapter VII draws some additional conclusions and insights, relevant to the present day and the future, from the history that has been presented. In so doing, it explicitly relates that history to issue areas of particular salience to joint and naval planners and decision-makers in the first decade of the 21st century.
- Chapter VIII analyzes seven potential alternative U.S. Navy deployment strategies for the future. Each alternative is drawn from past examples as well as from proposals by recent or contemporary advocates.
- Chapter IX briefly points the way to potential future study and analysis in these areas
- Chapter X summarizes briefly the answers to the ten questions posed at the start of the paper, drawn from the previous data presentation and analyses.
- Finally, as discussed earlier, the endnotes following Chapter X are extensive, to provide amplifying data, source citations, and bibliographic references for further study and analysis by readers.

In short, the front end of the paper is for decision-makers and planners; but both ends are for analysts and students.

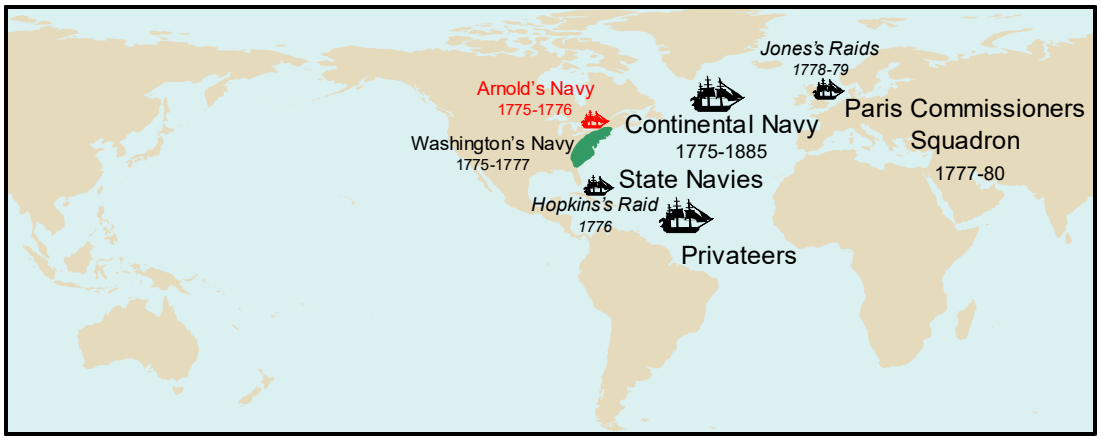
II. Navy deployment strategies: 1775-2002

This chapter lays out the data on which the observations and conclusions later in the paper are based. It describes 25 sequential changes in U.S. Navy deployment strategy since 1775, which yielded the following 25 distinctive and separate deployment eras:

- 1775-1785: Surge deployments and forward basing
- 1785-1798: No deployments (and no navy)
- 1798-1815: Surge deployments for wars
- 1815-1841: Deployments on forward stations
- 1841-1860: Forward stations and a new home squadron
- 1861-1865: Forward deployments for war
- 1861-1865: Home and forward deployments for war
- 1865-1889: Back to home surge and forward stations
- 1889-1905: Forward stations and home concentrations
- 1905-1914: Surge deployments for diplomacy: 1905-1914
- 1914-1917: One surge fleet and some forward presence
- 1917-1919: Dispersing for war: forward and at home
- 1919-1922: Two surge fleets and forward presence
- 1922-1937: One surge fleet again and forward presence
- 1937-1941: One surge fleet and one new home fleet
- 1941-1943: Surging forward and defending near home
- 1943-1945: Surging for global and trans-oceanic war
- 1945-1947: Two surge fleets and some forward presence
- 1947-1950: Creating combat-credible forward presence
- 1950-1972: Two forward presence hubs and two forward wars
- 1972-1979: Two forward hubs; one now forward-based
- 1979-1990: Add a third forward hub and surge more
- 1990-2001: Combat-credible forward presence in three hubs
- 9/11/2001: Immediate deployment response
- 2002: U.S. Navy deployment strategy today

We will now describe each of the 25 U.S. Navy deployment eras in turn, and why they changed.

Surge deployments and forward basing: 1775-1785



The year 1775 marked the first great transformation in American naval history: The creation of naval forces out of almost nothing.[21] The thirteen colonies had developed a significant shipbuilding and outfitting capabilities under British rule, and participated in British naval operations—especially privateering—in the Atlantic and the Caribbean.[22] When war came, merchantmen were armed, warships built, and some innovative experiments attempted.[23]

The U.S. Navy during the War for Independence was actually many navies: The Continental Navy (including the first U.S. Marines), individual state navies, naval forces subordinate to continental Army generals, and the navy of the Paris Commissioners.[24] There were also 450 or so privateers -- private armed vessels authorized by the Continental Congress and the states to operate against British merchantmen.[25] In November 1775, a month after directing the arming of warships, the Congress also directed the organization of two battalions of Marines.[26] These American naval forces sometimes deployed under Army command and sometimes in support of Army operations, but usually on their own.[27]

The America of those years was a small country: Less than three million people strung out in colonies along the Atlantic coast of North America from Maine to Georgia, with less than one percent of the world's manufacturing output.[28] Britain, France and Spain, by contrast, had populations of over ten million each.[29] Even Spanish Mexico was larger. Nevertheless, the Thirteen Colonies raised an effective army and creditable naval forces.[30] The Continental Navy was more or less a 50-ship Navy, although the number deployed at any one time varied widely. [31] It included 21 frigates and—at the end of the war—one 74-gun ship of the line.[32] Officers and men numbered no more than 3000 in any one year, and usually no more than 1500.[33] The Continental Navy was dwarfed, however, by the American privateer force, which included hundreds of vessels.[34]

At their peak, the American navies altogether comprised perhaps the 13th largest naval force in the world.[35] Their opponent, the Royal Navy was the world's leading naval power —as it would remain for the next century and a half. In 1778 and 1779, France, Spain and the Netherlands officially threw in their lots with the Americans against the British, bringing with them considerable naval forces. It was a French naval victory over a Royal Navy fleet in the Battle of the Virginia Capes that ensured the 1781 victory of General Washington at Yorktown, Virginia, clinching American independence and bringing the war to an end. While the Americans were allied after 1778-9 with the French, Spanish and Dutch, American naval units did not normally operate with the fleets of those nations.

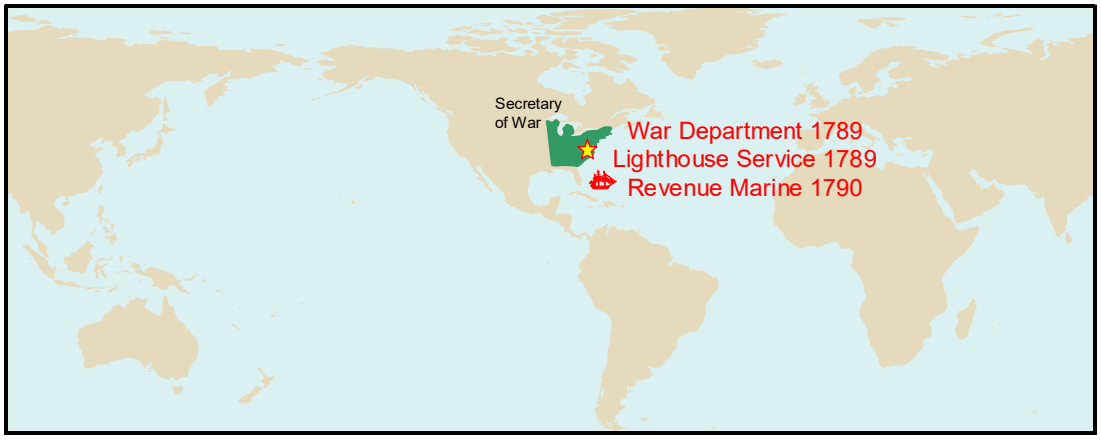
The various American naval forces were employed principally to raid enemy commerce, but also for amphibious operations, raids ashore and port defense.[36] They deployed largely in the western Atlantic and on Lake Champlain, but significant *forward* operations were conducted in the Caribbean and in the waters surrounding the British Isles.

In the very first naval operation of the Continental Navy, the *actual* employment of the Navy became misaligned with its *planned* employment: Commodore Esek Hopkins—tasked by Congress to defend the American coast from British commerce raiders—instead launched a forward amphibious raid in America's "Near Abroad" on the British colonial town of Nassau in the Bahamas, capturing cannon and munitions for the Continental Army.[37] Indeed, this initial American naval operation became a metaphor for the entire subsequent history of the United States Navy: Forward deployment and power projection would trump coastal patrol and homeland defense every time. In its most important homeland defense and anti-access operation—the defense of Charleston in 1779—the Continental Navy was unsuccessful.[38]

In 1776 this nascent North American coastal state sent a mission far forward across the North Atlantic. Its purpose, *inter alia*, was to set up a forward-based naval force in France and other European states. As a result, enterprising American naval commanders deployed from French or Spanish forward bases to prey on British shipping.[39] In 1778, for example, John Paul Jones landed in England itself and tried to burn ships at Whitehaven, its third most important port—the first hostile landing on English soil in over 100 years.[40]

Operations were normally conducted by single ships and very occasionally—and less successfully—by small squadrons. They engaged enemy warships, landed troops, and seized enemy merchantmen. Tactical dispositions were rudimentary to non-existent.[41]

No deployments (and no navy): 1785-1798



The year 1783 marked the beginning of the United States of America and the end of the War for Independence and America's first experience in wielding naval power. The Continental Navy and other American naval forces had fielded a respectably large force for a small country of less than three million people. These forces had deployed widely and fought well. Nevertheless, they had not been indispensable to the success of the War for Independence, and the expense of retaining them seemed daunting to the new American governments set up first in New York, and then Philadelphia and Washington. So the last remaining warship—the 32-gun frigate *Alliance*—was sold in 1785.

While the Army at least retained a handful of armed soldiers, from 1783 to 1798 the country had no Navy or Marine Corps at all.[42] Among the world's naval powers, it had simply disappeared from the list: A second major transformation.[43]

This did not mean that the country had no maritime interests or forces, however. The American merchant marine grew steadily during this period.[44] With established shipbuilding and seafaring industries, the new nation's merchants deployed far forward in search of trade and profits: to England, the Baltic, the Pacific Northwest, the Indian Ocean, China, Sumatra and Arabia.[45]

Meanwhile, the nation began to create some maritime agencies. In August 1789, George Washington, just elected the country's first president, approved an act of Congress incorporating local and state lighthouses along the Atlantic seaboard into a federal system, under the Secretary of the Treasury.[46] Also, his fledgling government needed money to function. Its chief sources of revenue were customs duties. Not everyone willingly paid those duties, however, so some government enforcement mechanism was needed. That mechanism was created in 1790 with the establishment of the Revenue Marine under the

Secretary of the Treasury. Coastal anti-smuggling deployments began in 1791. In 1797, Congress authorized the President to use cutters to defend the seacoast and repel any hostility toward American vessels and commerce. For nearly seven years, revenue cutters were the only armed ships the United States possessed.[47]

Meanwhile, threats to the new nation were omnipresent and even growing. The new nation faced Spanish forces—no longer allied to it—in Florida, the Gulf Coast and all along the Mississippi, including Spanish New Orleans. France, the ally of the War for Independence and mother country to various island colonies in the Caribbean, had begun its own political and military transformation in 1789, with the storming of the Bastille and the start of the French revolution. Above all, the United States was hemmed in on the north and east by the possessions and navy of its former metropole, Great Britain, including naval bases at Halifax, Bermuda, and Jamaica, and on the Great Lakes.

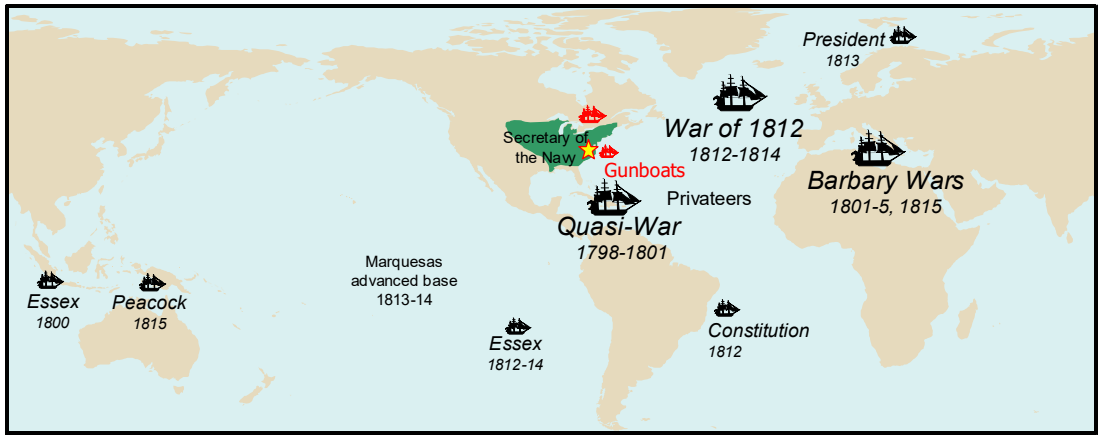
In the Mediterranean, no longer constrained by the Royal Navy from attacking American commerce, the state-licensed privateers of Morocco, Algiers, Tunis and Tripoli—the Barbary states—began to prey on American ships, demanding tribute or—failing that—seizing their crews and cargoes outright or holding them for ransom. In 1785, Algerian warships seized a Boston schooner—the first such attack.

The Constitution adopted in 1787 had designated the new President as "commander-in-chief of the Navy" and called for the new Congress to "provide and maintain a Navy." The nation took some time, however, in getting to do that. The government did have a tiny army, however, and in 1789 a War Department, with responsibility for coastal fortifications and defense, and for naval affairs. Meanwhile, the world situation continued to deteriorate. Britain went to war against France. While American shippers and merchants made money off the war, British and French naval forces and privateers interfered with American commerce, as did the Barbary States.

By the 1790s, the government decided it was time to reconstitute naval forces, if not a Navy. The country's naval procurement strategy—or, more correctly, its lack thereof—was out of alignment with the threats facing the country.[48] In 1794, Congress authorized construction of six frigates, ostensibly to protect the commerce of the United States from the depredations of the Algerians, but also to enable the Republic to stand up to Britain and France at sea. Building, outfitting and manning were conducted by the War Department, with War for Independence naval hero John Barry named senior captain of the navy.[49] At the same time, in 1794, the Congress also directed construction of Army coastal fortifications, and created a Corps of Artillerists and Engineers to garrison and build them.

The period ended with another great naval transformation: The re-creation of a sea-going, frigate-centered navy (and a Marine Corps). In 1798, a Department of the Navy was created under President John Adams. Benjamin Stoddert began his term as America's first Secretary of the Navy, taking over responsibility for the warships built and building that had formerly lay with the War Department. The country has never again lacked a navy.

Surge deployments for wars: 1798-1815



Once the Navy was established, it was immediately embroiled in conflicts with the French, Barbary States, and British.[50] Much of the world was at war, and the United States was trying to grow rich on neutral commerce.[51] She therefore became the target of French privateers, Barbary corsairs, and—once again—British naval might. America struck back, not only off her own Atlantic and Lakes coasts, but forward as well—in the Caribbean, the Eastern and Southern Atlantic, the Mediterranean and even the far reaches of the Pacific.[52] The deployment strategy of the new Navy (and of American privateers) was simple and well aligned with its planned and actual wartime employment strategies: In response to threats, it would surge out from U.S. ports to protect American shipping and operate against enemy commerce, commerce raiders and warships wherever they could be found—even far forward. When hostilities ended, the American warships would return to port.

The new Navy Department began to function under Secretary of the Navy Stoddert in 1798. Stoddert—a political appointee—was the operational commander of the Navy, answerable only to the President, and coordinating with the Secretary of War and other cabinet officers as necessary.[53] Stoddert's immediate concern was the naval Quasi-war with France, intended to force French privateers to cease raiding American commerce.[54] With only 22 ships operational at any one time in 1798, by war's end in 1801 Stoddert's Navy numbered over 50 warships (and 3000 officers and men).[55] The nation's naval forces also included eight revenue cutters, and was complemented by 365 privateers.[56] Stoddert began by deploying patrols off the coast, to ward off French privateers.[57] Then the war moved to the Caribbean, where it largely remained. (The frigate *Essex*, however, deployed to the East Indies to escort American merchantmen).[58] Deploying offensively, sometimes in squadrons but usually as single ships, the American Navy won the war: The French privateers ceased their depredations. U.S. Navy was then reduced to fourteen ships.

Meanwhile, troubles with the Barbary States continued.[59] In 1800, Morocco, Algeria, Tunis, and Tripoli together had a population of some six and a quarter million—more than that of the 16 American states.[60] They deployed large armed oar- and sail-powered fleets of privateers, capable of boarding merchantmen and combat at sea.[61] In 1801, Tripoli declared war on America, seeking more tribute. The president deployed a squadron to the Mediterranean—the first of several. After four years of U.S. Navy blockades, bombardments and landings a peace treaty was signed.[62]

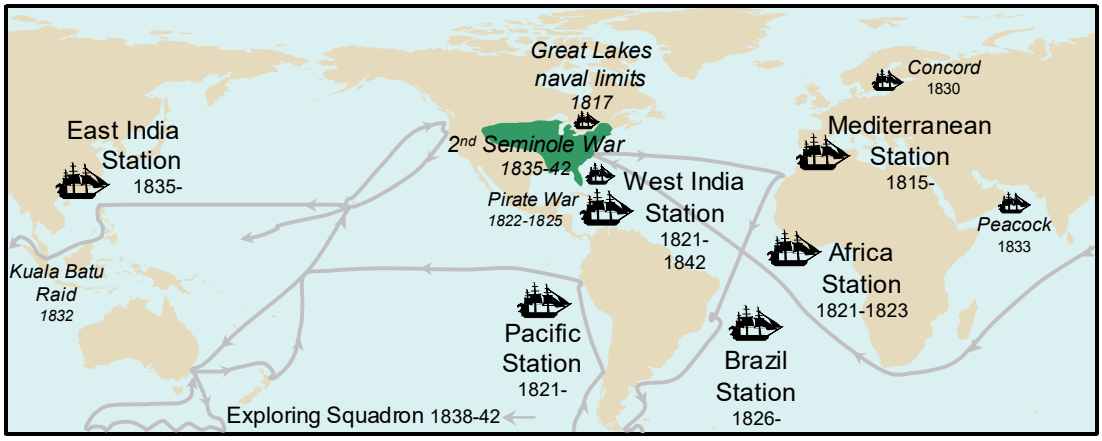
In 1803, President Jefferson bought Louisiana from France. The United States now included, for the first time, a direct presence on the Gulf of Mexico, at New Orleans. Jefferson, to save money, cut back on Adams's blue water Navy.[63] Starting in 1804, he built and deployed a large fleet of one- and two-gun gunboats—176 at their peak in 1809—in ports along the coast and at New Orleans, to be used as coastal defense forces to supplement new Army fortifications.[64] Jefferson also deployed the Navy jointly with the Revenue Marine to help enforce customs laws and embargoes.[65]

The first dozen years of the 19th century saw an increase in animosity and incidents at sea between the United States and Britain.[66] These culminated in an unplanned-for war in 1812.[67] Initially, American warships formed squadrons, the first of which surge deployed immediately across the Atlantic to intercept a British convoy.[68] Later they cruised singly (as did some revenue cutters and over 500 American privateers), raiding British commerce far forward and fighting ship-to-ship engagements resulting in an initial string of American victories.[69] With only 18 warships in 1812, the American Navy deployed 75 by 1814.[70] At 8024 officers and men, it was probably the eighth largest navy in the world.[71]

After Napoleon's first exile in 1814, however, the Royal Navy was free to concentrate off the United States, blockading American frigates in their ports and raiding American coasts. U.S. Navy gunboats fought anti-access actions against the British on Chesapeake Bay and elsewhere, and helped in the joint land defense of Washington and Baltimore.[72] Meanwhile, the Americans were unsuccessful in invading Canada, but in a series of joint operations (with naval units fighting as squadrons) did achieve naval supremacy on the Lakes.[73] (Jointness was also evident in the sheltering of U.S. Navy warships behind U.S. Army forts).[74] A strong privateer force also deployed, in a last hurrah.[75] And once again, America—with no Pacific coast—deployed ships far into that ocean—e.g., the frigate *Essex* in 1812-14, and the sloop of war *Peacock* in 1815.[76] The war ended with a great joint U.S. victory before New Orleans, with U.S. Navy gunboats helping delay the British advance.[77] But most American Navy warships were blockaded in their ports, the gunboats all but useless.[78] The peace treaty saw a return to the political and military *status quo ante*.

Also, just as the war was ending, war flared up again in North Africa—this time with Algiers. Another American squadron deployed to the Mediterranean, and peace was achieved within months on terms favorable to the United States. That squadron—to be followed by yet another—practiced tactical maneuvers on its way home—a U.S. Navy first.[79]

Deployments on forward stations: 1815-1841



With the war era behind it, the U.S. Navy transformed once again.[80] It stopped being a home-based force that surged from Atlantic ports to do battle, interdict commerce, and protect American merchantmen. Rather, it became a globally-dispersed set of forward-stationed squadrons charged principally with commerce and whaling protection and piracy suppression. It also carried out a host of other diplomatic, scientific, humanitarian, and military operations other than war (MOOTW).[81] Each squadron—numbering a half-dozen ships or so—was more an administrative than a tactical unit: Ships on forward station normally operated singly to carry out their missions, deploying from the United States for three years, and supported by forward warehouses and supply agents.[82] Activities were assigned by the Secretary of the Navy, advised since 1815 by a Board of Commissioners.[83]

The U.S. Navy remained a strong military force, however, numbering anywhere between four and eight thousand officers and men and between 40 to 70 ships, including as many as 6 ships of the line (no more than one or two of which were actually deployable forward at one time, however).[84] Indeed, after the British, French, and Russian Navies, it was probably the fourth most potent naval force in the world, and one that other navies—especially the Royal Navy—often took into account in their plans.[85] This was as it should be, for the navy of a country as wealthy as the United States was becoming.[86]

To implement its planned wartime employment strategy of commerce-raiding and its doctrine of qualitative superiority, the larger warships of the fleet—many normally kept in varying states of un-readiness—could be outfitted and made ready for sea.[87] This was periodically considered during the occasional but fleeting war scares with Great Britain.[88] Nevertheless, the nation could not afford a procurement strategy aligned with both an *actual* peacetime employment strategy of forward trade protection against Third World threats and a *planned* employment strategy of forward operations against a European naval power. Inevitably, forces for the *planned* employment strategy withered away.

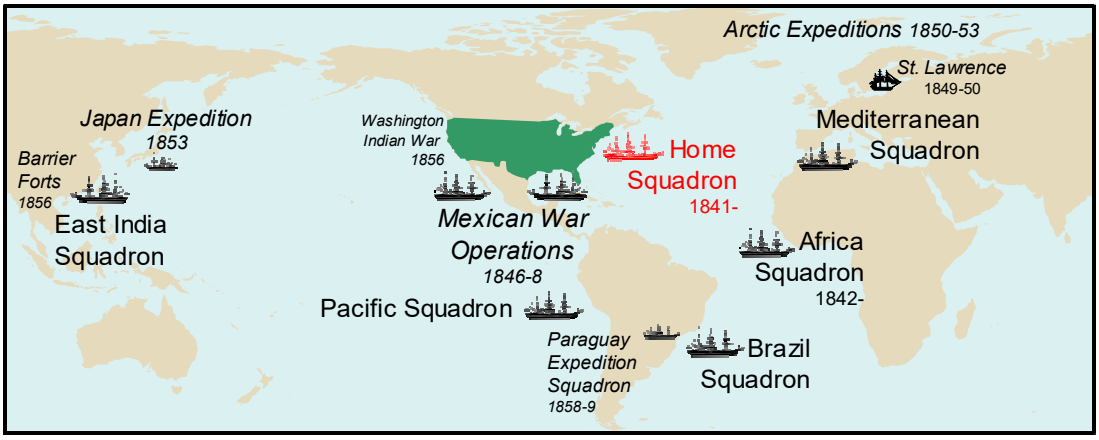
The nation's deployment strategy during this period was well aligned with its *actual* employment strategy: Permanent forward stations to protect continuing forward trade interests.[89] The requirement to protect American commerce was driven by the rapid increase in the importance of commerce to the nation during the "Golden Age" of the American merchant marine.[90] Historians differ as to the starting date of each forward station, but clearly a permanent U.S. Navy presence in the Mediterranean grew out of the last of the Barbary Wars in 1815.[91] Other stations were in place by 1821: in the West Indies to suppress pirates with the Revenue Marine; off the South American Pacific coast to protect commerce; and off West Africa to stop slaving and assist in Liberian nation-building.[92] This was two years after President Monroe bought Florida (and its extensive Gulf and Atlantic coasts), and two years before promulgation of his doctrine closing the hemisphere to Europeans.

A station off the East Coast of South America followed by 1826 (to oversee American ports of call), and an East India Squadron (for commerce development and protection) by 1835.[93] U.S. naval operations were not confined to the forward stations, however. There was also a visit to the Baltic and the first visits by U.S. Navy warships to the Arabian Peninsula, as well as preparations of an exploring squadron for a global expedition (1838-42).[94] Operations in the Pacific were particularly significant. Not only did the United States establish a naval presence at each end of that vast ocean, but it did so decades before the country itself acquired a Pacific Ocean seacoast. [95]

The rise of the forward stations was paralleled by a transformative decline in the naval importance of the Great Lakes. An 1817 Anglo-American naval arms limitation agreement now allowed only a tiny naval presence there.[96] The agreement was occasionally breached, however, and did not reduce Canada's military vulnerability to potential American invasion by much. Indeed, an often uneasy balance of power would be maintained throughout the century between the undisputed British naval capabilities to raid the U.S. East Coast at will and the ability of 17 million Americans (in 1840) to hold two million Canadians hostage.[97]

The U.S. Navy of the period was an operational, militarily potent, forward expeditionary force. The Navy *inter alia* interfered with Argentine activities in the Falklands, carried out reprisal raids in Sumatra, and suppressed piracy worldwide, especially in the Aegean Sea and the Caribbean "Near Abroad."[98] The Navy (and its Marine Corps) also often operated in support of U.S. diplomatic and consular personnel.[99] The Army of the period was small and focused on pacifying the interior of the continent, Indian removal, and constructing and maintaining coastal and inland forts.[100] Nevertheless, the Army and Navy (with its Marines) conducted joint coastal and riverine operations in Florida during the 1835-42 Second Seminole War (as did some revenue cutters).[101] Also, Navy officers participated in an important joint board surveying the nation's homeland coastal defenses.[102] During the Nullification Crisis of 1832-3, U.S. Navy schooners were deployed to Charleston, South Carolina to back up Revenue Marine cutters there.[103] Combined operations were few, but did include a coordinated landing with the Royal Navy in Uruguay in 1832.

Forward stations and a new home squadron: 1841-1860



The year 1841 saw an important—and illustrative—change in the deployment strategy of the U.S. Navy: the creation—and almost immediate diversion—of a Home Squadron in the North Atlantic. While by no means a transformation, this change was a metaphor for the fleeting use throughout history of the U.S. Navy as an at-sea homeland defense force.

The key naval relationship of the United States in the 19th century was with Great Britain. The Royal Navy was incomparably the world's dominant naval force, although the size, quality, disposition and reputation of the U.S. Navy made it a not insignificant potential opponent.[104] Despite a baseline of generally peaceful relations, Anglo-American rivalries and disputes triggered war scares on both sides of the Atlantic about once every decade since 1815.[105] Boundary disputes and American interference in British-Canadian relations had caused one such scare in 1837, and by 1841 relations had so deteriorated that Congress directed President John Tyler to establish a Home Squadron of eight ships for homeland defense, to cruise along the American coasts.[106] U.S. Navy deployment strategy was now to be aligned with planned wartime (alongside actual peacetime) employment strategy.

The Home Squadron was formed in 1841—taking over the ships and mandate of the West India Squadron as well. Anglo-American relations warmed, however, after the Webster-Ashburton Treaty of 1842, settling boundary disputes—and providing for the re-establishment (in 1843) of the Africa Station, for combined suppression of the slave trade. By 1842 the Home Squadron had been dispersed to West Indian waters, illustrating the default position for U.S. Navy forces: Normally forward, not off America's coasts.[107] Another war scare occurred in 1846 over the Oregon Country, but later that year the United States was confirmed as sole sovereign of what is now Washington and Oregon. Territorially, America was now an undisputed Pacific coast power.

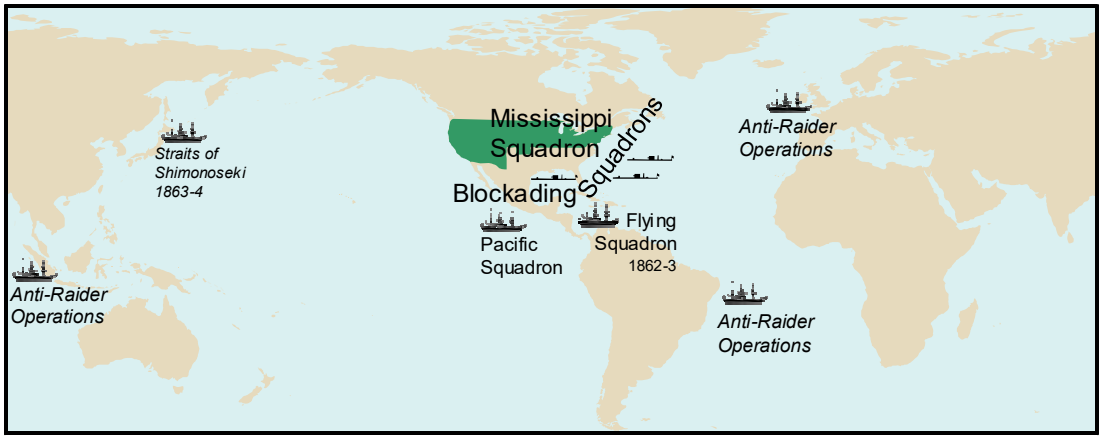
This period was one of significant American joint, military and naval forward expeditionary operations.[108] U.S. Navy forward deployment strategy easily aligned and re-aligned itself with the country's wartime forward employment strategies.[109] Most important, of course, was the Mexican War of 1846-1848.[110] A Navy with a planned employment strategy of blockade-breaking, commerce-raiding and coastal defense was now charged with enforcing a blockade itself and attacking a foreign coast.[111] The Navy landed sailors and Marines to help take California from the sea, coordinating with Army commanders.[112] Joint operations were effective, and relations good in most cases.

Also, with some Revenue Marine vessels, the U.S. Navy supported the U.S. Army in the largest, and jointest, amphibious operation to be conducted by the United States until the Civil War: The landing at Vera Cruz.[113] The Navy blockaded all of Mexico's ports—a task rendered easier by the fact that Mexico possessed a negligible navy—and landed Marines in spots.[114] With victory in 1848, American sovereignty was established over California, where the Navy and Army later jointly quelled a vigilante movement in San Francisco in 1856.[115] There were other joint activities and operations as well.[116] During this entire period, the Navy normally never had more than about 50 active warships nor less than 20, with some eight to eleven thousand officers and men.[117]

Combined naval operations occurred frequently. Occasional hostility to Britain at home notwithstanding, forward U.S. Navy commanders often cooperated with the Royal Navy —and occasionally others—especially in China, South America and off Africa.[118] The U.S. Navy also deployed a war squadron to Paraguay in 1858-59—the largest American military operation between the Mexican and Civil Wars. Eighteen American warships ascended the River Plate system to punish the Paraguayans for firing on a U.S. survey ship.[119] The most famous of U.S. Navy diplomatic expeditions of the period was the arrival of the black ships of Commodore Mathew Perry's East India Squadron in Edo Bay in 1853.[120] The next year, in the Treaty of Kanagawa, Perry opened Japan to foreign commerce (and technology). But the U.S Navy also showed or used force in the Comoros, Argentina, Nicaragua, Turkey, Panama, China, Okinawa, Uruguay, Fiji and Angola.[121] The frigate *St. Lawrence* operated extensively in the Baltic in 1849-50.[122] Scientific expeditions continued as well, in the Arctic, the Dead Sea, the Amazon, and Chile. The Navy deployed its first warship up the Yangtze River in China in 1854.[123] Few U.S. Navy warships deployed to the Arabian Sea, however.[124]

Besides these major combat deployments and operations, the Navy was active on its normal forward stations—militarily, diplomatically and scientifically. As ever, its principal function was the protection of American trade—which grew spectacularly during this period. Protection of American missionaries in the Eastern Mediterranean and Far East received increasing attention also.[125] None of these operations, however—not even the Mexican War—appreciably changed the global forward deployment strategy of the Navy. Despite the new American Pacific coastline, for example, the Pacific Squadron remained a small force, its depots shifted from Valparaiso, Chile to Mare Island, California and Callao, Peru.[126] And U.S. Navy squadrons still exhibited little tactical proficiency.[127]

Forward deployments for war: 1861-1865



Initially, the traditional prewar deployment, planned employment, procurement, and organizational strategies of the U.S. Navy were not at all aligned with the actual employment strategy that was about to be followed. The modest 50-ship wooden-hulled fleet was deployed all over the world for operations other than war.[128] Its leadership had believed that if it went to war, however, it would, break blockades, raid enemy commerce and engage in single-ship gun duels. The ships on distant station had been optimized for foreign cruising, and the larger ships resting in their stocks were by now largely useless. The outbreak of the Civil War in 1861, however, triggered the next great transformation of the U. S. Navy: To a huge fleet of almost 700 vessels—many clad in iron—skilled at long-term coastal blockade, joint amphibious assault, and joint riverine operations.[129]

These transformations in procurement and employment strategies of the fleet were aligned with a transformation in its deployment strategy as well: in a superb example of naval flexibility, Secretary of the Navy Gideon Welles called in all the distant stations and divided the Home Squadron into two and later four forward Blockading Squadrons in the Atlantic and the Gulf.[130] He also created a Mississippi Squadron. That deployment strategy aligned with Welles's plans to strangle the South along its coasts while cutting it in two by controlling the Mississippi (another example of U.S. Navy strategy in a forward but "Near Abroad" region).[131]

Welles's planned employment strategy was well on its way to implementation as early as 1862, with joint amphibious operations on the North Carolina coast, joint riverine operations on the rivers of Tennessee, and the Navy's seizure of New Orleans as an enabling force.[132] Good cooperation with the Army—without unified command—was the norm in these operations, although there were some examples of poor inter-service relations as well.[133] As usual, the Army was responsible for providing most of its own

sealift ships.[134] Unlike in other wars, the Revenue Marine was not taken over or utilized to any great extent by the Navy, which viewed its vessels as unsuitable for war.[135] The Marines continued to furnish ships' guards for Navy vessels in order to enforce shipboard discipline, man guns, and participate in landings and assaults ashore.[136] The major amphibious assault force of the war was, however, the Army.

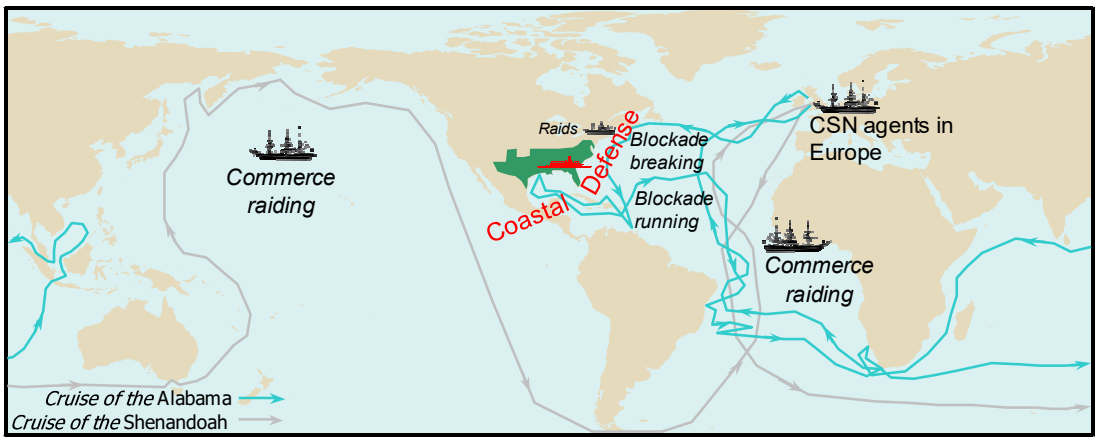
Welles routinely resisted calls to provided escorts for Union commerce or homeland defense forces off the Atlantic coast, although he re-created a West India Squadron in 1862 for that purpose, and occasionally released screw sloops and frigates to chase Confederate raiders down.[137] His eyes were on the blockade and offensive forward operations against the enemy - attacking him along his coasts, in his ports, and on his rivers.[138]

The Navy kept a tiny Pacific Squadron in the Eastern Pacific to protect the gold shipments from California to Panama.[139] A few warships were also deployed to the Western Pacific to maintain America's interests there, as well as try to catch Confederate commerce raiders.[140] They even engaged in combined combat operations against a Japanese warlord in the Straits of Shimonoseki.[141]

Europe still mattered. In late 1861, Britain d deployed considerable naval forces at Halifax, Bermuda and in the Pacific in case of war with the United States—considered possible after the U.S. Navy seizure of Confederate agents from a British vessel on the high seas.[142] That war scare, however, like those of 1837, 1841, 1846, and 1856, soon dissipated. Nevertheless, taking advantage of the American preoccupation with its Civil War, in 1862 Spain, France and Britain occupied Vera Cruz, Mexico. While Spain and Britain soon withdrew, France went on to conquer much of the country, setting up an Austrian prince, Maximilian, as emperor in 1864.[143] Meanwhile Spain reoccupied the Dominican Republic and declared war on Peru, seizing some islands. Russia sent squadrons to northern Atlantic and Pacific ports, ostensibly as shows of solidarity with the Union, but principally to position them forward should another war with Britain break out due to the Polish Revolt of 1863.[144]

By 1865, the Confederacy was defeated on land, at sea, on its rivers and along its coasts, and the U.S. Navy comprised almost 700-ships.[145] It had started the war in its accustomed place as the world's fourth-ranked navy. At the end—while perhaps equal to the Royal Navy—it was larger than the navies of France or Russia.[146] Given the even greater strength of the U.S. Army in 1865, it is small wonder that Spain evacuated Santo Domingo in that year, and France abandoned Maximilian to his eventual defeat and execution in 1867.[147]

Home and forward deployments for war: 1861-1865



There was not just one American navy during the Civil War. There were two, and the deployment strategies of both need to be described here.[148] As with so many other aspects of the Confederacy, the record of its navy would have influence for decades to come.

The Confederacy—like the 13 colonies almost a century earlier—started its war with no navy at all, of course. By the time of its demise in 1865, it had nevertheless managed to cobble together a wide variety of ships, underwater weapons and shore batteries. Some 130 warships were deployed by the Confederate Navy over its lifetime, although only a fraction of that number were ever in service conducting operations at any one time.[149]

The Confederate Navy—like its Union adversary—took its operational direction from its civilian Secretary of the Navy, who acted in turn under the loose direction of President Jefferson Davis (as commander-in-chief of all southern forces). Its employment strategy consisted of three main elements: homeland defense; blockade breaking and running; and commerce raiding. (The Confederates also launched some pinprick forward raids from the sea on the North and on Northern coastal shipping).[150]

Confederate Navy operations at sea were complemented and supplemented by some small state naval forces, privateers, and Confederate Army maritime forces.[151] Privateering—so important to U.S. war efforts at sea earlier in the century—had been outlawed by most European states (but not the United States) at Paris in 1856. The few Confederate privateers that operated in the first two years of the war proved to be the last of their kind in the world.

The Confederate Navy's deployment strategy was aligned with its employment strategy. It deployed in southern harbors for defense, and on the high seas globally—including from forward bases—for commerce raiding and blockade running. As in the nation's early wars, once again an American navy, operating only from Atlantic and Gulf ports,

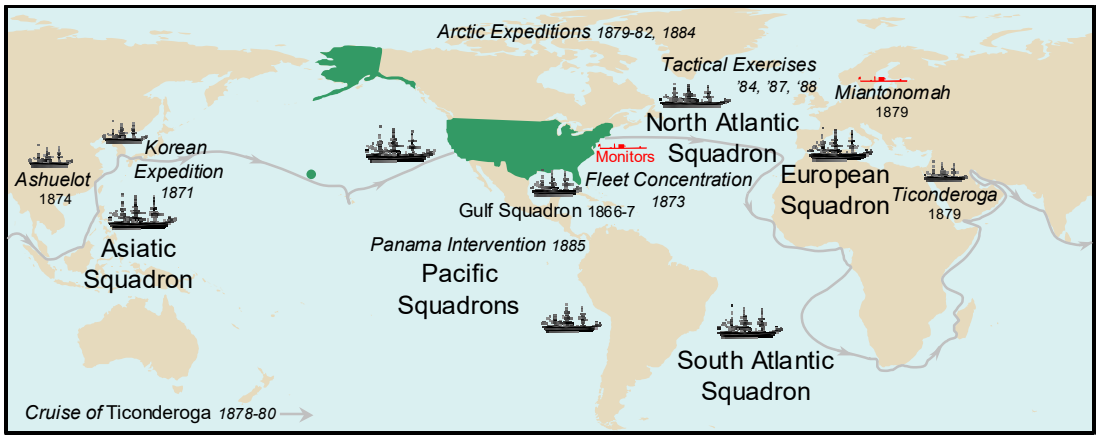
believed that far forward deployments and operations were critical to the success of its strategy—not only in the Atlantic, but also in the Pacific and Indian Oceans as well. To outflank the Union blockade diplomatically and militarily, the Confederacy sent naval agents to Britain and France to build, purchase, outfit and deploy commerce raiders and other warships, and to set up forward bases. Most of their efforts in that regard were unsuccessful, but they did manage to deploy from European ports the raiders *Florida*, *Alabama*, and *Shenandoah*; the ironclad blockade-breaker *Stonewall*; and many fast Navy and civilian blockade runners.[152]

While not able to win the war for the Confederacy, the raiders did decimate the Union merchant marine.[153] CSS *Alabama*, for example, destroyed 64 ships, while late in the war CSS *Shenandoah* destroyed 38, including whalers in the Bering Sea.[154] Although the absolute number of losses was only a fraction of the total merchant fleet, the panic created drove half the fleet to transfer to foreign flags, laid up many of the remainder in Northern ports, and killed the New England whaling industry.

The division of military roles and missions between the army and navy of the Confederacy regarding homeland defense responsibilities yielded some operational difficulties. Divided command was in part responsible for the disastrous loss of New Orleans in 1862. Also, while the Army eventually gained responsibility for sowing harbor obstructions, especially underwater mines, the Navy devoted precious resources to manning shore batteries on the rivers that served as Union invasion routes, especially in Virginia. Joint homeland defense operations were frequent, but Army-Navy friction was widespread.[155]

The Confederate States Navy was only a small part of a much larger doomed enterprise. In the long run, it could neither prevent nor defeat the northern blockade nor resist Union amphibious landings and port seizures. Nor could it so damage Union commerce as to cripple the Union war effort. But what it did do was continue the deployment strategy of global forward operations and the practice of technical innovation that have usually characterized America's navies.

Back to home surge and forward stations: 1865-1889



With the Civil War at an end, yet another U.S. Navy transformation occurred. Secretary of the Navy Welles brought U.S. Navy force levels and end strength down sharply. The number of active warships went from almost 700 in 1865 to only 39 by 1888.[156] U.S. Navy ranking among the world's naval forces likewise dropped from probably second only to the Royal Navy in 1865 to about twelfth in 1884.[157] Nevertheless, the U.S. Navy—despite its small size and aging technology—was capable of routinely deploying and operating forward globally—an achievement unmatched by many larger and more modern navies of the time, which remained regionally focused.

The Mississippi River Squadron was disbanded and the far forward stations reconstituted, albeit with some changes and renamings.[158] In a return to prewar deployment strategy, the reconstituted and renamed North Atlantic and Pacific Squadrons not only deployed cruisers on distant station, but also monitors offshore for homeland defense.[159] A Gulf Squadron reappeared briefly, while the Africa Squadron disappeared.[160]

As before the war, the forward squadrons were mostly administrative entities and the warships assigned to them usually deployed independently. Deployment strategy was, again, mostly the handmaiden of a peacetime employment strategy of commerce-protection, diplomacy, missionary and humanitarian assistance, and other MOOTW operations.[161] In contrast to the ante-bellum eras, however, there was now far less U.S. commerce in the world to protect, as the U.S. merchant marine continued its inexorable decline in the face of British competition.[162] Also, there were now fewer threats to other American interests in the Third World, as European colonial acquisitions and the continued anti-piracy campaigns of the European navies reduced their numbers considerably.[163]

There was a lessening of the pace of technical innovation in the fleet, despite continued advances in the navies of Europe and even Latin America. While steam propulsion and

iron armor had been widely introduced into the Civil War squadrons, important civilians and naval officers now viewed them as unsuitable and uneconomical for the Navy's actual employment strategy of distant cruising.[164] Also, the Navy continued to mount smoothbore cannon, while rifling became more common abroad. In another instance of mal-alignment, the U.S. Navy of the times, although probably adequate for its peacetime forward deployment and employment strategies, was quite inadequate to carry out its planned wartime employment strategy of coastal defense and commerce raiding, let alone take on a concentrated naval battle fleet.[165] It was not until 1883 that Congress authorized the first four ships of the "New Steel Navy," finally beginning a transformation in U.S. Navy procurement strategy.[166]

The fleet's actual employment record was occasionally highly assertive, highlighted by an 1871 Asiatic Squadron expedition to Korea; an 1882 involvement in the British bombardment of Alexandria, Egypt; and an 1885 Navy and Marine landing in Panama.[167] From 1878 to 1880 the screw sloop *Ticonderoga* circumnavigated the globe to open markets to American business, including in the Persian Gulf.[168] In 1866 the monitor *Miantonomo* visited Russian Baltic waters and ports, and the Navy made another of its infrequent port visits in Oman.[169] In 1874, the sidewheel gunboat *Ashuelot* made a thousand-mile deployment up the Yangtze River in China.[170] And in 1879, the screw sloop *Wyoming* became the first U.S. Navy warship to deploy in the Black Sea.[171]

Marines and sailors also landed to keep order or protect U.S. interests in Taiwan, Uruguay, Japan, Hawaii, Mexico, Egypt, and China, and made additional landings in Panama and Korea. Often, these were combined expeditions with Royal Navy and French Navy units.[172] There were only a few opportunities, however, for joint operations with the Army.[173] The Navy did, however, dispatch a relief expedition to the Arctic to rescue an Army party in 1884, deploy for Rear Admiral Luce's joint exercises off Newport in 1884 and 1887, and provide senior officers to serve on joint Army-Navy boards.[174]

The modest success of many of these operations was in contrast, however, to the poor exercise performance of the fleet when it was concentrated off Key West in response to a Spanish war scare in 1873—the "*Virginius* Affair".[175] The Navy's poor showing on maneuvers, and the decline in both its ship count and the relevance of its missions, created a mood of disquiet in parts of the Navy officer corps and the nation's navalists, whose budding planned future employment strategy for the Navy was scarcely aligned with the actual employment and deployment strategies then being pursued.[176]

The United States—whatever the state of its army, navy and merchant marine—had by now become a world economic colossus. By 1870, it had surpassed Britain, France, Spain, Germany and Japan in both population and gross domestic product (GDP).[177] Moreover, in 1867, Secretary of State Seward had bought Alaska and the Aleutians from Russia and had annexed Midway Island in the North Central Pacific.[178] America was now also a major Pacific power.

Forward stations and home concentrations: 1889-1905

The last decade of the 19th century and the first half-decade of the 20th marked probably the greatest transformation ever in the planned employment and procurement strategies of the Navy.[179] The Navy's deployment strategy, however, would not be aligned with them until the very end of this period, although it was moving in that from 1889 on. For America and her armed forces, this was the period of enormous economic growth;[180] the closing of the frontier; diplomatic rapprochement with Great Britain; joint wars against Spain and Philippine freedom fighters; coalition operations in China against the Boxers; and the acquisition of Puerto Rico, Guantanamo Bay, the Philippines, Wake, Guam, Hawaii, Samoa, and the Panama Canal Zone.[181]

By 1905, the active fleet numbered 174 ships—all steel—and the Navy was ranked number four in the world again.[182] All this growth was not reflected in the commercial maritime sector, however. While the country was willing to spend lavishly on its Navy, it was not willing to use public funds to support a large merchant marine—protecting which had formerly been a major justification for a Navy.[183] There was much thinking and writing on naval strategy during this period. The chief naval analyst and proponent was Rear Admiral Alfred Thayer Mahan, who argued for a concentrated home battle fleet, not forward squadrons.[184] Theorizing was paced by planning: For the first time in peacetime, U.S. naval officers began to systematically plan wartime employment strategies against possible enemies—first Great Britain and Spain, and later the German and Japanese empires.[185]

Realigning the Navy's deployment strategy required several steps, however: First, an experimental Squadron of Evolution deployed in 1889 to develop and practice multi-ship tactical combat dispositions.[186] The North Atlantic Squadron began to deploy for annual exercises in the Atlantic.[187] The North and South Atlantic squadrons concentrated briefly during a war scare against Chile in 1892, to protect U.S. interests in Brazil in 1893, and during the Spanish-American War in 1898.[188] The Mediterranean Squadron operated as a

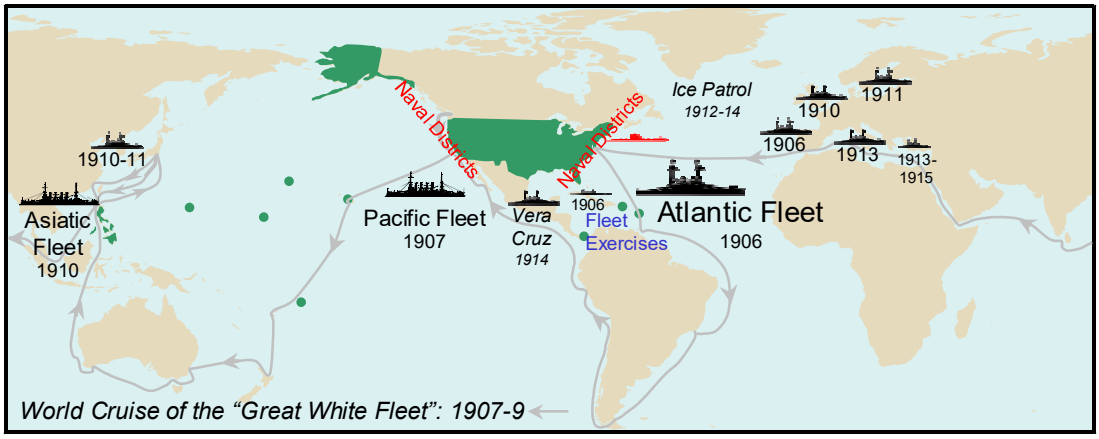
coherent entity against the Ottomans in the 1890s.[189] In 1901-02, the ships of the Atlantic Squadron exercised together in their first station maneuvers. In 1902-03, for the first time in peacetime, multi-squadron exercises were held in the Caribbean (during a crisis with Germany over Venezuela), with the reinforced North Atlantic Squadron now styled the North Atlantic *Fleet*.[190] As part of this exercise, the Marines conducted their first advanced base force exercises.[191] Later, in 1904, 19 warships from the North Atlantic Fleet and the South Atlantic and Mediterranean Squadrons deployed to Morocco during a crisis there.[192]

In a contrary (but short-lived) evolution, however, at the start of the 1898 war with Spain, public pressure had forced the Navy to keep squadrons cruising initially off the American East Coast for homeland defense operations.[193] Nevertheless, the war ultimately saw a U.S. Navy battleship concentration in the Caribbean, supported from an advanced base at Key West.[194] (An "Eastern Squadron" was later readied to surge deploy across the Atlantic to Spanish waters if necessary).[195] The North Atlantic and Asiatic Squadrons had deployed within their areas of responsibility to fight the war; the Pacific Squadron lost forces to both; and the other squadrons headed to the United States and temporary folding into the North Atlantic Squadron.[196] The war itself involved American sea control operations in the Caribbean and the Philippines—including destruction of Spanish squadrons, blockades, and amphibious operations.[197]

The war also saw effective but sometimes acrimonious joint relations.[198] Revenue cutters smoothly transferred from Treasury to Navy control.[199] Army-Navy cooperation was generally good in Washington, Puerto Rico, Guam and the Philippines, but stormy in Cuba and regarding sealift.[200] In part as a result, the two departments created a Joint Army and Navy Board in 1903.[201] It launched major joint war planning efforts—giving new status to planned employment strategies—but it was advisory only, and had no command authority.[202] (Neither did a new General Board of the Navy, set up in 1900 to provide the Navy Secretary with professional advice from senior naval officers).[203] Army primary responsibility to protect Navy bases was recognized, however, and joint Army-Navy homeland defense and amphibious operations were exercised.[204]

The forward squadrons were not quiescent. They were, in fact, often used traditionally—as MOOTW tools—at Samoa in 1889;[205] in the Philippines jointly with the Army;[206] to help relieve the Boxer siege in Beijing;[207] to patrol China's rivers;[208] and to land sailors and Marines in Argentina, Chile, Hawaii, Nicaragua, Korea, Trinidad, Colombia, Honduras, the Dominican Republic, Lebanon, Turkey and Panama (where they helped engineer the revolution that led to the digging of the Canal).[209] Battleships were deployed to the Asiatic Squadron from 1899 through 1906.[210] Some operations—most famously the Boxer Expedition—were combined operations with the British and other navies. Not traditional, however, was President Theodore Roosevelt's global fleet positioning during the 1903 Panama crisis.[211] Nor were his unprecedented 1903 and 1904 naval shows of force in northern European waters and Mediterranean.[212] America was now a great power, and its navy was being used like a great power navy. In his fleet concentrations, deployments to Europe, and zeal for an inter-oceanic canal, Roosevelt foreshadowed a transformation.[213]

Surge deployments for diplomacy: 1905-1914



The U.S. Navy after 1905 would be a much-transformed force by comparison with the Navy of the 19th century forward stations—especially in its deployment strategy. The nation now wielded a steel battle fleet trained and equipped to defeat other fleets, rather than a series of small squadrons to protect commerce and show the flag in faraway places—a change, in Samuel Huntington's words, from a "continental" to an "oceanic" era.[214] A navy that had more than quadrupled in size over the preceding fifteen years now grew by a third in a decade—from 174 ships in 1905 to 224 in 1914 (and from 12 to 34 battleships)[215]. Other nations and their navies entertained similar notions and had similar building programs, and naval arms races broke out among the great and lesser powers of the day. Depending on the year, the U.S. fleet ranked second, third, or fourth.[216]

In 1905 President Roosevelt finally abolished the Mediterranean and South Atlantic Squadrons.[217] The North Atlantic Fleet became a multi-squadron battleship-heavy Atlantic Fleet based on the east coast (for ease of deployment in war against a European fleet in the Caribbean or Atlantic).[218] Likewise, in 1907 the Pacific and Asiatic Squadrons lost their battleships and were consolidated in one Pacific Fleet.[219] The plethora of American interests in the Western Pacific and the distances involved, however, made this unworkable. In 1910, the Pacific Fleet's third squadron, deployed in the Far East, became the Asiatic Fleet, leaving the Pacific Fleet responsible for the eastern Pacific only.[220]

Basing on the east and west coasts, however, did not mean staying home.[221] The new deployment strategy was not only to concentrate the home fleets in Atlantic and Pacific ports and exercise them nearby, but to surge them forward frequently - whenever the national interest required—and in combat-credible force packages.[222] Roosevelt used the deployments to signal American interest and concern regarding specific events, and to demonstrate American naval prowess. Roosevelt's order to his "Great White Fleet" of 16

battleships—resisted by his naval officers—to circumnavigate the globe from 1907 through 1909 was only one example of this strategy.[223]

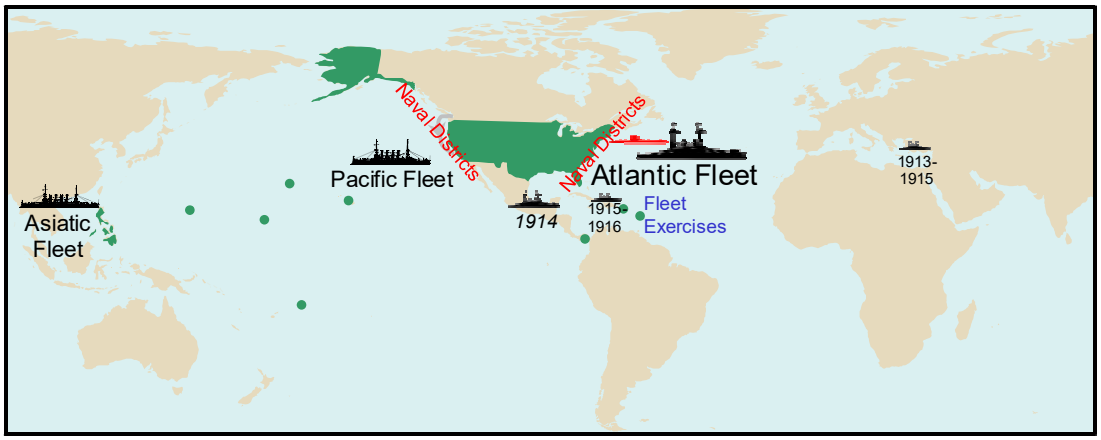
Combat-credible fleet surge deployments became almost annual events: In 1906, Roosevelt had deployed a division of the Atlantic Fleet to Gibraltar during a Moroccan crisis.[224] In 1908, while the battleships were visiting Japan, he ordered the innovative deployment of seven armored cruisers from California to Samoa, each towing a destroyer. In 1910, his successor William Howard Taft deployed the cruisers to the Philippines, China and Japan, and sent a battleship force even larger than the Great White Fleet to visit British and French ports.[225] In 1911, Taft deployed a battleship division to Baltic Sea ports.[226] And in 1913, during the Balkan Wars, President Woodrow Wilson surge deployed nine battleships to the Mediterranean.[227] They were recalled in 1914, however, when Wilson sent much of the Atlantic Fleet to bombard and occupy Vera Cruz, Mexico.[228] From 1905 through 1914, no other navy in the world implemented as extensive a forward deployment strategy.[229]

Peacetime surge deployments were the central element of the Navy's deployment strategy. Nevertheless, that strategy also included small permanent forward deployments in Asia and the Caribbean for OOTW, as well as exercises offshore to prepare for war.[230] The continued need to protect American interests around the world necessitated traditional forward deployments, landings of sailors and Marines, and peacekeeping operations ashore in China, Cuba, Jamaica, Honduras, Panama, Nicaragua, Haiti, Mexico and the Dominican Republic.[231] Unlike many 19th century landings, these were all unilateral—not combined —operations. From 1912 to 1914, the Navy also provided cruisers on ice patrol in the North Atlantic, a mission subsequently passed to the U.S. Coast Guard.[232]

Whenever it was at home, the fleet was poised—throughout the decade—to surge from its bases to the Caribbean to do battle with the Germans—whose fleet it anticipated would try to set up an advanced base in or near Puerto Rico before moving on to attack American coasts. Naval operational and tactical thought was focused deploying for this hypothetical campaign against Germany - implementing War Plan Black.[233] Routine naval exercises—broken up by surge deployments so beloved of Presidents and disliked by naval officers—drilled the fleet in gunnery, formation steaming and other warfighting skills.[234]

For its small homeland defense role, the Navy deployed torpedo boats and new harbor and coastal defense submarines. The bulk of the joint homeland defense (and naval base defense) mission, however, was assigned to the Army and its coastal fortifications, coast artillery, controlled minefields, and searchlight batteries.[235] The Joint Army and Navy Board continued to develop planned employment strategies through its "color plans." Its influence began waning in 1907, however, when Army-Navy disagreements over fortifying the Philippines exasperated President Roosevelt. In 1913, President Wilson suspended it for trying to force unsought advice on him.[236] Both the Army and the Marines began to conceptualize, and practice, expeditionary warfare—for which each needed Navy support.[237] Also, the Marines continued to focus on seizing and defending fleet advanced bases, conducting their first big exercise on Culebra in 1914.[238]

One surge fleet and forward presence: 1914-1917



The U.S. Navy from 1914 to 1917 (and indeed to 1941, if the Navy's brief participation in World War I is excluded) implemented a much different deployment strategy than that of the preceding decade. Smaller-scale contingencies and MOOTW continued, in China and the Caribbean, conducted mostly by on-scene squadrons and backed up from time to time and briefly by reinforcements from the continental United States. At-sea offshore and Caribbean exercises continued and in fact were enhanced, while homeland defense operations to police American neutrality were much more modest.

Gone, however, were the numerous and lengthy combat-credible forward surges—to the Navy's delight. From the start of World War I in Europe to the start of World War II, "the battle fleet trained while the gunboats fought," and only small numbers of ships deployed to show the flag or indicated American concern or involvement on the world stage.[239]

Meanwhile, the Navy swelled from 224 ships in 1914 to 342 in early 1917 (and from 34 to 37 battleships). The number of auxiliaries in the fleet jumped from 29 in 1914 to 96 at the start of American participation in World War I in 1917. The number of submarines went from 36 to 44 and the number of destroyers from 50 to 66 in the same period.[240]

The continued need to protect American interests around the world necessitated some traditional forward OOTW deployments, however: Landings of sailors and Marines, and peacekeeping operations ashore in Cuba, Jamaica, Honduras, Panama, Nicaragua, China, Haiti, Mexico and the Dominican Republic.[241] As in the preceding decade, these were all unilateral—not combined—operations.

The flexibility of the fleet for surge operations in either ocean was greatly enhanced by the opening of the Panama Canal in 1914. The Army and Navy had now acquired a new part of the "extended homeland" to defend, however: the Canal Zone. Another such territory was also acquired in 1917, with the purchase of the Virgin Islands from Denmark.[242] Regarding these and earlier new American possessions abroad, where the nation and its Army tended to see

new sovereign American territory to be defended, the Navy and its Marines saw new overseas advanced bases necessary for the forward offensive progress of the battle fleet. The Navy began to deploy submarines in 1917 from a base at Coco Solo in the Canal Zone, to defend the Canal and its approaches.

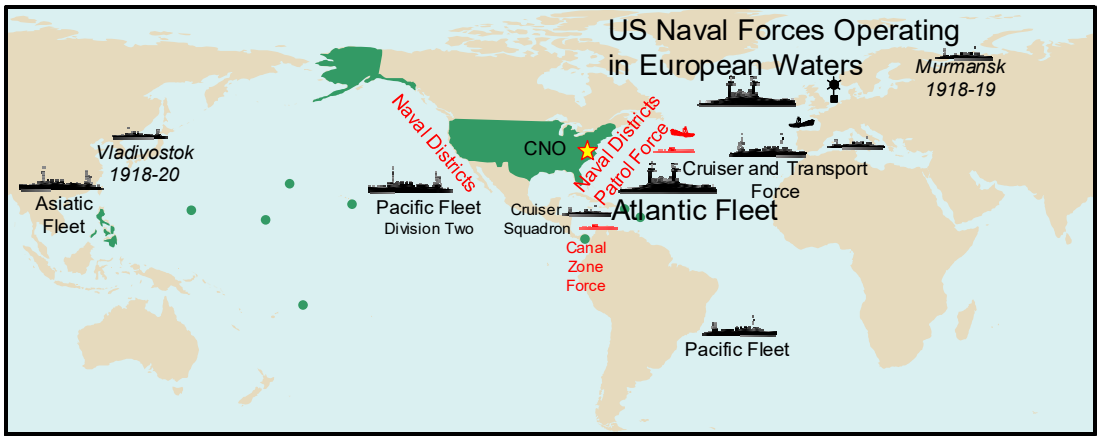
The most important event of the era was the outbreak of World War I in 1914. Forward deployments were now ill-advised, and the fleet delighted in improving its capabilities to surge deploy in strength and fight in the Caribbean.[243] There it still planned to do battle with the Germans—whose fleet it anticipated might succeed in breaking out of the North Sea, past the British Grand Fleet, and setting up an advanced base in or near Puerto Rico before moving on to attack American coasts. Naval operational and tactical thought continued to focus on War Plan Black. Accordingly, the Atlantic Fleet held major annual fleet exercises in 1915 and 1916, and several minor ones.

For homeland defense and neutrality enforcement in the coastal waters of the United States and its possessions, the Navy deployed small patrols of destroyers and similar ships. For its small homeland defense role, the Navy also deployed harbor and coastal defense submarines and its fledgling naval aviation forces. Submarines were also deployed to protect the Panama Canal.

The bulk of the joint homeland defense (and naval base protection) mission, however, was still assigned to the Army. Although President Wilson had suspended the Joint Army and Navy Board, Navy officers served on the joint Philippine Defense Board ("Liggett Board") of 1915 and a Joint Army and Navy Aeronautical Board created in 1916 to reconcile service views on military aviation.[244]

Also, both the Army and the Marines continued to develop doctrine for expeditionary warfare.[245]

Dispersing for war: forward and at home: 1917-1919



America, the world's third naval power at the time, declared war on the second—Imperial Germany—on April 6, 1917.[246] U.S. Navy wartime deployment and employment strategies were not, however, what had been planned or exercised.[247] No German battle fleet made it to the Caribbean—or any place else outside the North Sea—in the face of the post-Jutland British Grand Fleet guarding the exit points from its base at Scapa Flow. What did make it out to the Atlantic—and the Caribbean and the Mediterranean—was a flood of German submarines, whose operations had triggered the U.S. declaration of war. Needed most on the allied side were sealift ships and their escorts, especially destroyers—a ship type in relatively short supply in the battleship-heavy U.S. Atlantic Fleet.[248] The fleet Theodore Roosevelt had consolidated was now quickly fragmented and dispersed.

The vast industrial resources of the United States swung into high gear to produce the missing destroyers and much else.[249] The size of the fleet swelled from 342 ships when America entered the war in April 1917, to 774—39 of them battleships—at war's end in November 1918—a fleet almost as strong as the Royal Navy and superior to all others.[250] More than half deployed in European waters.[251] An initial battleship squadron deployed to a forward base at Scapa Flow to beef up the Grand Fleet, while a second was forward-based later in Bantry Bay, Ireland.[252] The rump of the American battle fleet remained on the East Coast, still exercising and waiting for the German fleet. Also on the East Coast was a greatly expanded homeland defense patrol force, to guard against German submarines and surface raiders (the Coast Guard had been put under the Navy when America entered the war).[253] Surface raiders never came, but the Germans did launch an offshore submarine offensive from Canada to the Carolinas in 1918.[254]

Forward American destroyer bases were set up in Britain, France, and Italy, supporting extensive commerce protection operations. A huge fleet of new naval aircraft - mostly anti-submarine patrol bombers—vdeployed to forward bases in France, Italy and Britain, as well as to new bases along the American east coast.[255] Navy patrol vessels, submarines,

blimps and aircraft patrolled coasts and harbors of the United States as well as the Panama Canal approaches, and the East Coast naval districts organized a convoy system for coastal merchant shipping.[256] A submarine flotilla deployed forward to the Azores and later to Ireland. The most modern units of the small Pacific Fleet were swung around to the South Atlantic to form a patrol force there, working out of Brazilian and Uruguayan ports.[257]

Aided by new legislation and seizing opportunities afforded by the war, the U.S. Merchant Marine blossomed into a huge fleet again.[258] The Navy set up two separate innovative sealift commands: One for troops and one for cargo. This represented a transformation in U.S. military sealift strategy: In all previous wars, sealift of Army troops and supplies had been an Army responsibility, with the Navy providing mostly protection and sea-based fire support. Now the Navy—for the first time—was in the sealift business itself in a big—and successful—way, moving almost half the American Expeditionary Force to Europe.[259] A large U.S. Navy Cruiser and Transport Force was created to lift these troops. A separate Naval Overseas Transportation Service was created in 1918 to transport cargo. The Navy also sent five big naval guns to France, mounted on railway cars, to support American and French armies.[260] This and new joint aviation boards were about the extent of wartime jointness.[261] The campaigns at sea and ashore were complementary but mostly separate.[262]

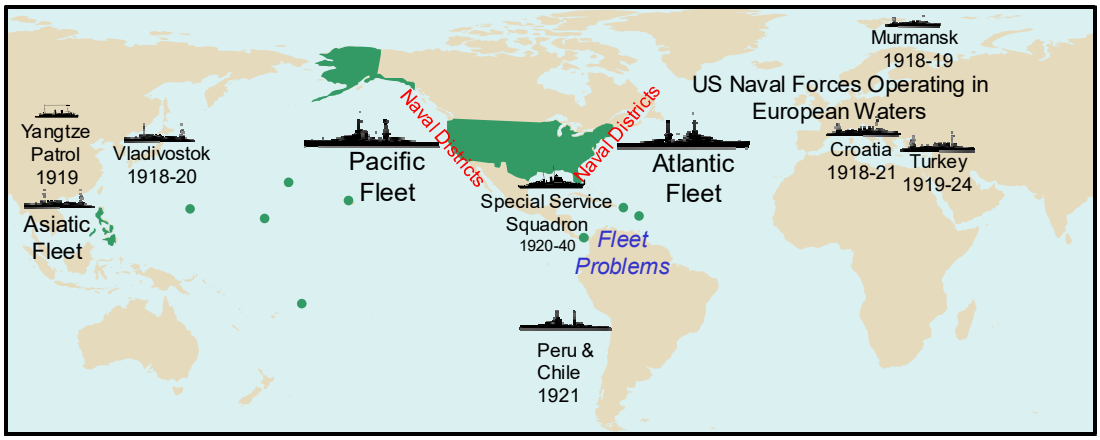
Meanwhile, the U.S. Marine Corps, with no advanced fleet bases to seize or defend, grew from ten to fifty thousand officers and men, and sent a brigade into battle in France to participate superbly as ground troops in an extended land campaign with the Army.[263]

Even in the midst of great war, however, the Navy found itself involved in a few lesser contingencies. In 1918, in reaction to the chaos engendered by the Russian Revolution, U.S. Navy cruisers and other warships were sent to both Murmansk and Vladivostok, alongside British and French warships and sometimes in support of U.S. Army troops deployed ashore.[264] U.S. interests in the Antilles also required attention.[265]

Command of U.S. naval forces in Europe was fragmented. The battleships and destroyers forward based in Britain came under Vice Admiral William S. Sims, Commander, U.S. Naval Forces Operating in European Waters, with headquarters in London. Nominally under the Atlantic Fleet commander, Sims acted independently, communicating directly at times with the President, the Secretary of the Navy, and the Chief of Naval Operations.

The U.S. Navy in World War I didn't merely operate alongside allies. Many of its most important forces were under Royal Navy operational control; e.g., the battleships at Scapa Flow and the destroyers working out of Queenstown, Ireland.[266] Not only was the U.S. Navy divided up into discrete and disparate pieces during the war, but many of these pieces were engaged in combined operations supporting Royal Navy anti-submarine warfare commanders, not a U.S. battle fleet admiral.[267] The battleships at Bantry Bay and the forces working out of Brest, France, however, remained independent American commands, however, coordinating and cooperating with the Royal Navy and French Navy.

Two surge fleets and forward presence: 1919-1922



Following the war, the Navy was transformed yet again, coming to terms with its new status as the number-two navy in the world, and with a building plan that would make it number one. Dismissing the wartime deployments as aberrations, Navy deployment strategy returned to its previous surge deployment strategy, complemented by a sprinkling of forward-deployed MOOTW forces in Europe, East Asia and the Caribbean.[268]

This time however, the fleet was of such size—even allowing for the inevitable drawdown from 775 ships at war's end to 567 by July 1920—that it could deploy *two* such fleets.[269] (In the summer of 1920, the fleet had 26 battleships, down from its Armistice Day high of 39. But by 1922, the number had dropped to 22, out of a total fleet of 379 warships. Five of those battleships, however, had been completed after World War I, and were brand new.) Moreover, the spectacular expansion of the U.S. Merchant Marine during the war significantly improved the fleet's potential logistic outlook, especially in the Pacific.[270]

In the summer of 1919, Secretary of the Navy Daniels sent sizeable chunks of the Atlantic Fleet to the Pacific, yielding a roughly equal battle fleet on each coast, poised to surge.[271] Daniels thus broke with the undivided fleet deployment strategy advocated by Mahan and Roosevelt, but—aligning his employment strategy with the Navy's s planned employment strategy of the period—was determined to deter Japan as well as the naval powers of Europe.[272] Should the fleet require consolidation, the canal in Panama was now available.

Immediately resuming the prewar fleet exercise program, a large fleet problem was held in the Caribbean in 1919 and separate fleet problems were held in each ocean in 1920. In 1921, an enormous combined exercise involving both fleets (and the Panama Canal) was held in the Pacific off Panama, whereupon the fleets visited Peru and Chile before going home.[273] No fleet exercise would be held in 1922, however, due to lack of funds for fuel.

Meanwhile, large fleets—so in vogue in the world before the war—hardly enjoyed the same universal cachet after it. To head off a revived arms race at sea, the governments of the United States, the Britain, Japan, France and Italy convened a naval arms limitation conference in Washington in November 1921. By February 1922, they had agreed on a series of treaties that *inter alia* limited battleship and aircraft carrier construction and other aspects of naval armaments, and prohibited further fortification of most Pacific islands, including the Philippines, Aleutians, Guam, Samoa and Wake.[274]

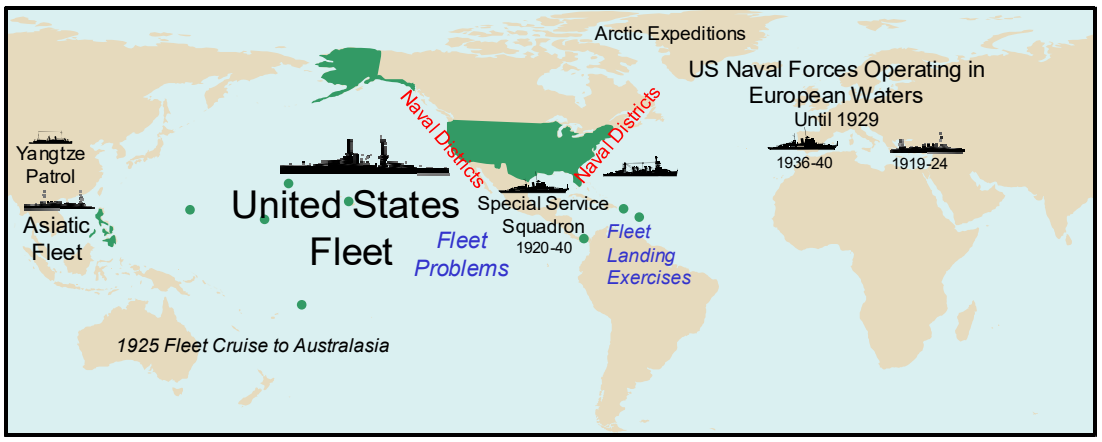
Still, a slew of residual forward MOOTW responsibilities remained for the Navy:[275] The squadrons at Murmansk and Vladivostok hung on until 1919 and 1920 respectively. An American Naval Mission in the Adriatic was constituted from 1918 to 1921 to guard a stretch of Yugoslav Croatian Dalmatia from Italian encroachments.[276] Another such force was set up at Constantinople from 1919 to 1924 to help deal with the chaos engendered by the collapse of the Ottoman Empire, the Greco-Turkish War, the subsequent Greek evacuation of Asia Minor, and the Russian Civil War raging throughout the Black Sea littoral, especially the trans-Caucasus.[277] All these operations involved significant cooperation with other navies, especially those of Britain, France, Italy and Greece.

At the same time, in the Far East, the Asiatic Fleet continued its diplomatic and other operations, overseeing the Vladivostok expedition, landing Marines periodically in China, and organizing a new command structure for the gunboats on the Yangtze River: The Yangtze Patrol.[278] Also, a small Special Service Squadron of old cruisers and destroyers —separate from the fleets and forward-based in Panama—was constituted in 1920 to support the State Department directly in its efforts to further U.S. interests in America's 'Near Abroad"—the Caribbean.[279]

Marines were again landed in the Dominican Republic, Haiti, Guatemala, Nicaragua and Honduras.[280] Despite their primary missions as colonial infantry, the Marines continued to focus on problems of advanced base seizure and defense.[281] East and West Coast Expeditionary Forces were formed for service with the fleets, and schools were established at Quantico.

Homeland defense was an important mission area in interwar national security planning.[282] In 1920 the Joint Army and Navy Board and later the Congress delineated service responsibilities in coastal defense.[283] Meanwhile, the Army continued to improve its fortifications designed to protect U.S. Navy bases.

One surge fleet again and forward presence: 1922-1937



In 1922, after three years of controversy and planning, Chief of Naval Operations Robert Coontz ordered yet another major change in the Fleet's deployment strategy: He again consolidated the battle fleet.[284] Of its four components, the core Battle Fleet and Fleet Base Force were now based on the Pacific Coast, while the Scouting Fleet and the Control Force were initially based on the East Coast (the Scouting Fleet moved to the Pacific also in 1932).[285] The fleet was to plan for operations as one entity, however—most likely in the Pacific—using the Panama Canal to link its elements.[286]

This was a return to the 1914-1917 deployment strategy, except now the Pacific had pride of place, rather than the Atlantic. This deployment strategy aligned well with the heavy requirements of the Navy's planned wartime forward employment strategy against Japan—War Plan Orange—as well as with its relatively light actual peacetime employment strategy requirements.[287]

This was no oft-deployed surge force like the pre-1914 fleets. While individual ships and squadrons often deployed overseas during this period, the combat-credible Battle Fleet took only one forward cruise—to Australia and the southwest Pacific in 1925.[288] Otherwise—chronically short of funds and careful to avoid provoking the Japanese—it stayed near home and planned, exercised, practiced, prepared and experimented.[289] All year long, elements of the fleet practiced their wartime roles. Then, usually once each year (beginning in March 1923) the entire fleet assembled in one location—usually off Panama or Hawaii—for an elaborate Fleet Problem.[290]

The America of this period deliberately kept a low international profile. Sending a combat-credible battle fleet to cruise off Japan or the United Kingdom would have been anathema to presidents and secretaries of state of the period—not to mention possibly dangerous and certainly difficult logistically.[291]

Freed from the need to plan and conduct large "real-world" forward presence or MOOTW operations, the fleet was principally a giant training center and laboratory, and its operations giant training drills and fleet battle experiments.[292] Between Fleet Problems, the fleet's performance was analyzed by staffs in the fleet and in Washington; by the faculty, war-gaming staff and students of the Naval War College; and by the staff officers and engineers of the Navy's technical bureaus and laboratories, and of industry.[293] War plans, fleet battle doctrine and systems were then modified accordingly.[294]

The U.S. Navy—with around 350 ships and over 1000 aircraft—retained its status as one of the two world leaders, just behind the Royal Navy, with the Imperial Japanese Navy in third place.[295] The Navy was limited in its size and shape, however, by the constraints of the evolving Treaty system, and by tight budgetary strictures.[296] It never even acquired the tonnage allowed under the Treaty until the late 1930s. U.S. Navy active warship numbers in the interwar period dropped from 379 in 1922 to 308 by 1931, climbing back to 335 by 1937. The comparable figures for battleships were 19 to 11 (in 1932) to 15.[297]

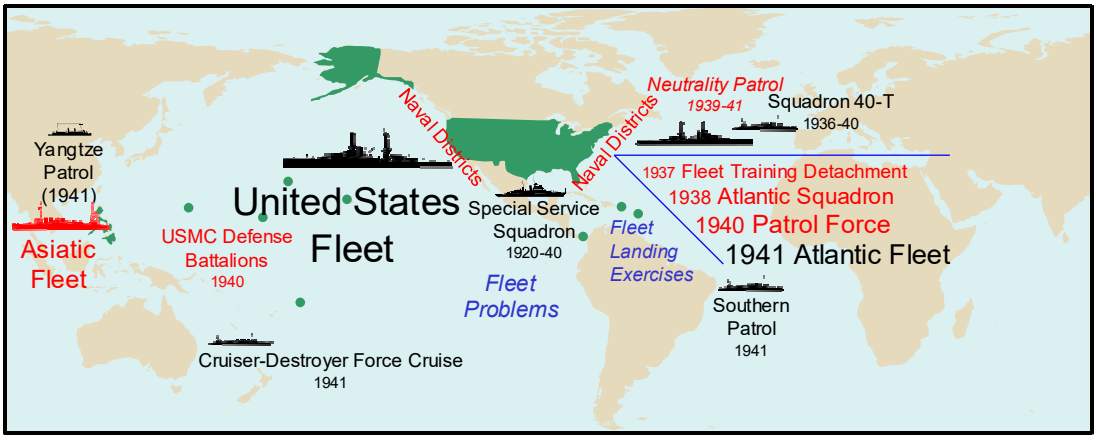
The Army, however, fared even worse.[298] During most of the interwar period, the Army was a force kept in readiness for "small wars" of maneuver and mobility in the colonies and along the border, as well as for homeland defense in the Western Hemisphere. While it became increasingly focused on events in Europe and the possibilities of a major war there, it remained organized and equipped for small wars and coast defense.

Joint inter-relationships, while existent and even multiplying, were nevertheless often poisoned by the continued inter-service acrimony over the efficacy and control of military and naval aviation, and disagreements regarding "Orange" plans.[299] Nevertheless, Army (and Army Air Corps) officers served together with Navy and Marine Corps officers, and participated in numerous joint exercises.[300] Joint war planning—including but not limited to War Plan "Orange"—proceeded apace.[301] The services continued to negotiate delineation of their respective homeland defense missions, and to deploy forces in offshore homeland defense and surveillance exercises to gain an edge in those talks.[302]

The country bordered on the isolationist and the Navy was fixated on a possible war with Japan. Nevertheless, the interests of the nation demanded a few small naval forces be forward deployed, to conduct the critical MOOTW of the day.[303] These forces—not part of the U.S. Fleet—included the Special Service Squadron in the Caribbean; and the Asiatic Fleet, with its Yangtze Patrol, in the Western Pacific.[304] They were occasionally reinforced during specific crises, especially during 1927 "multi-crises" in China and Nicaragua, and off Cuba in 1933-34. Marine landings in the Caribbean and China occurred with great frequency during this period - those in China often as part of ad hoc coalitions.[305]

Other, more transient, forces included U.S. Naval Forces in Europe, finally disestablished in 1929, and Squadron 40-T—a cruiser-destroyer-cutter force created in 1936 to look after American interests threatened by the Spanish Civil War, and which often operated as part of an ad hoc coalition of other interested powers.[306]

One surge fleet and one new home fleet: 1937-1941



In 1937—after Germany and Italy agreed to form an "axis" and Japan invaded China—the nation's naval deployment strategy began to shift yet again: Toward a build-up of forces in the Atlantic, and their eventual use as a homeland defense patrol force shielding the Americas from war.[307] The Atlantic increase included some new ships: The total U.S. Navy fleet—while still somewhat smaller than that of Britain—doubled from 335 ships in 1937 to 790 in 1941—seven of them carriers.[308] The rest of the Atlantic build-up, however, came from transfers from the main body of the U.S. Fleet in the Pacific to what was at first the Scouting Force's Training Squadron, then the U.S. Fleet Training Detachment in 1937, the Fleet's Atlantic Squadron in 1938, the Fleet's Patrol Force in 1940, and finally a re-created independent Atlantic Fleet in 1941.[309] The Atlantic saw its first carrier in 1939. By 1940, after the Germans conquered France, Navy planned employment strategy aligned with this new deployment strategy: Chief of Naval Operations Harold Stark drafted his "Plan Dog" paper, providing a rationale for dealing with Europe and the Atlantic first.[310]

With the nation moving to a war footing, the fleet became more a fleet-in-being and less an experimental laboratory. The spring of 1940 saw the last of the big Fleet Problems held off Hawaii.[311] Annual Fleet Landing Exercises continued, however, mostly in the Caribbean, through the spring of 1941, growing in size and complexity.[312]

The increase in fleet numbers was in part a product of the demise of the Washington Treaty system. The Japanese left the treaty system in 1936; the other signatories—including the United States—left it soon thereafter.[313] This meant removal of limitations not only on fleet size and character, but also on fortifications of Pacific Islands. Accordingly, the U.S Army reinforced its garrisons in the Philippines and Hawaii, while U.S. Marine Corps Defense Battalions were constituted to defend Hawaii, Midway, Wake, Guantanamo Bay, Samoa and other Navy advanced bases from air and sea attack.[314] Meanwhile, the Navy acquired

an extensive new advanced base system in the eastern Atlantic following the "Destroyers-Bases Agreement" of 1940.[315] In February 1941, the Marine brigade on each coast became a division and a vast new Marine base on the east coast was built in North Carolina.[316]

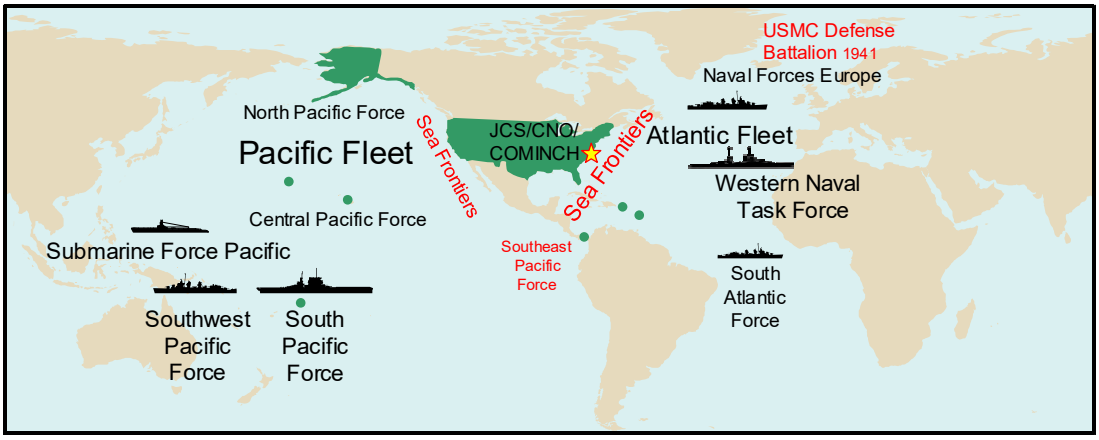
With American involvement in the new world war becoming possible, the U.S. Fleet in the eastern and central Pacific sought to increase its readiness, despite the more forward deployment to Hawaii of its main battleship and carrier battle forces in 1939 and 1940 by President Franklin Roosevelt.[317] Likewise, the units in the western and central Atlantic increasingly were on a war footing as - after the outbreak of war in Europe in 1939 - President Roosevelt created a Neutrality Patrol, from Nova Scotia to the Guianas, as part of the Atlantic Squadron. Its announced function was to observe, report and track the movements of ships of belligerents approaching the coasts of the United States or the West Indies; i.e., homeland defense. Its fundamental purpose, however, was to emphasize the readiness of the U.S. Navy to defend the Western Hemisphere from German submarines and surface raiders. In 1940, a patrol in the waters around Greenland was added.

As readiness for possible regional or world war increased, MOOTW receded in importance on the list of Navy tasks. The Japanese invasion of China was followed by a Japanese attack on the Yangtze Patrol gunboat *Panay*. This and other regional developments reduced Asiatic Fleet operations to show the flag and protect U.S. interests in China, and increased that fleet's focus on assisting in the possible defense of the Philippines against Japanese attack. In 1940, the Commander in Chief of the Asiatic Fleet, Admiral Thomas Hart, redeployed his cruiser flagship and most of his other ships from Shanghai to Manila. Also in 1940, the U.S. Navy closed down its Special Service Squadron in the Caribbean.[318] Later the same year it brought home Squadron 40-T from Spanish waters.[319] Some smaller operations still occurred, however, e.g.: The 1939 deployment of a heavy cruiser to Yokohama deliver the ashes of the recently deceased Japanese ambassador to Washington; and a spring 1941 cruiser-destroyer squadron forward deployment to Australia.[320]

The Navy also began to pay increasing attention to homeland defense, behind the Patrol Force shield. Naval District forces were beefed up, including recommissioned World-War-I-era destroyers for coastal patrol and harbor defense in 1940.[321] In 1939, the Lighthouse Service was transferred to the Coast Guard, and in November 1941 the Coast Guard itself was transferred to Navy operational control, for the second time in its history.[322]

Meanwhile, the Army and its Air Corps were growing and evolving too.[323] In August 1939 the Army held its largest exercises since World War I. President Roosevelt moved the services closer together and strengthened his own authority when, in 1939, he had the existing major joint boards report directly to him, and established some new ones.[324] Joint exercises continued.[325] By 1940, a series of joint Harbor Entrance Command Posts (HECPS) had been set up for local Army and Navy commanders with harbor defense responsibilities to share, to coordinate army coast artillery and minefield operations with Navy net and patrol operations. Moreover, combined U.S. Navy-Royal Navy global war planning began in 1938 and intensified by 1941.[326]

Surging forward and defending near home: 1941-1943



In March 1941, in the most sweeping changes since 1922, the U.S. Fleet was redivided into an Atlantic Fleet (formerly the Patrol Force), a Pacific Fleet, and a small Asiatic Fleet.[327] Throughout 1941, as the war situation in Europe and the Atlantic continued to go poorly for Great Britain, the President and the CNO expanded the Atlantic Fleet in size and responsibilities, giving it three more carriers and beginning patrols in the South Atlantic.[328] Convoy escort—and combat—operations ensued in the North Atlantic in September, and the Navy began flying land-based maritime patrol aircraft again.[329] The Marines formed an Emergency Striking Force with the Army in June 1941, and surge deployed a brigade to occupy Iceland in July.[330] Their pullout from Shanghai in November 1941 ended their use as colonial infantry.[331] The Army grew alongside the Navy, finally holding large-scale exercises of its own—the GHQ ("Louisiana") Maneuvers—with Navy help.[332] And a new joint Atlantic Amphibious Force began large-scale amphibious assault training.[333]

The December 1941 Japanese raid on Hawaii and invasions of the Philippines, Guam and Wake ushered in a period of intense blue-water oceanic combat by U.S. Navy task forces in both the Atlantic and Pacific Oceans, both close to home and far forward.[334] It also triggered the swing of naval forces from the Atlantic to the Pacific.[335] Nevertheless, the basic deployment strategy of the Navy—a major fleet in each ocean—remained, aligned with an organizational strategy that kept Atlantic and Pacific Fleet commanders in place as well. These fleets now surge deployed forward to the Mediterranean and South Pacific, fighting sea battles en route in the Eastern Atlantic, Caribbean, Coral Sea and off Midway.

Meanwhile, a profound transformation was beginning regarding joint military operations, planning and command.[336] Immediately after the Pearl Harbor attack, the President ordered joint commands be set up to defend Hawaii and Panama.[337] This was followed by the creation of a series of joint—and combined—Pacific theater commands in 1942.[338] In April 1942, former CNO Admiral Harold Stark, arrived in London to run the build-up and

training of U.S. Navy forces forward, in anticipation of a future allied invasion of the continent.[339] Later in 1942, an allied force was set up under U.S. Army general Dwight D. Eisenhower to direct the invasion of French North Africa. His naval component commander was a Royal Navy admiral, who in turn had a U.S. Navy task force commander assigned—setting a pattern that would be repeated in Europe throughout the war.[340]

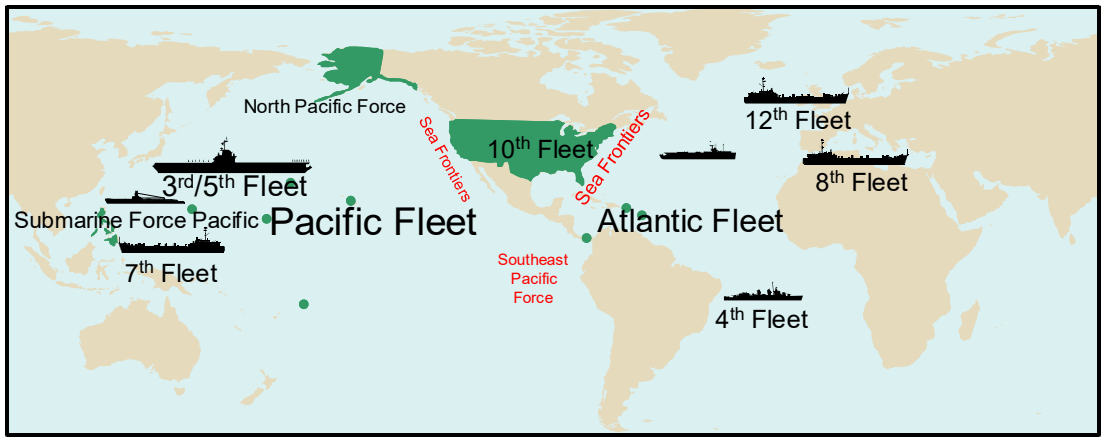
Homeland defense deployments became critical.[341] The Marine Defense Battalions on Wake and Guam fell, as did the Army and Asiatic Fleet defenders of the Philippines. To direct antisubmarine operations in coastal areas, the Navy had set up Naval Coastal Frontiers in mid-1941, then Sea Frontiers in February 1942. These bore the brunt of German submarine operations in early 1942.[342] American, British and Canadian Navy and Air Force commanders, striving for sea control to protect allied shipping, divided and re-divided the Atlantic geographically and functionally, but never instituted unified joint or combined command.[343] U.S. Navy carrier, battleship and cruiser task forces routinely operated in the Eastern Atlantic under Royal Navy control through late 1943.[344]

In the Mediterranean and its approaches, however, these operations were intermittently dwarfed by the need to land Army troops *en masse* on foreign shores - first in Morocco, then Sicily, and then southern Italy. In the Pacific, the fleet was divided into task forces to first raid Japanese islands and protect allied ones; then to cut enemy lines of communications and achieve sea control by destroying the Japanese Fleet, land Marines and some Army troops in the Southwest Pacific, and support them once they were ashore, especially the Marines in the Solomons.[345] The Navy—belatedly—began to build and deploy an afloat logistics force to free the fleet from its tethers to bases—even advanced bases.[346] Submarine deployments meanwhile became less oriented toward directly supporting the rest of the fleet and more toward forward independent anti-ship patrols.[347]

Presiding over all, under the President, were the new Joint Chiefs of Staff, with the CNO as a member and another admiral as chairman.[348] The CNO was also now Commander in Chief, U.S. Fleet, in operational command of most of the nation's naval forces—the most powerful naval officer in U.S. history.[349] Other joint commands and boards also were created. All American naval war planning and operations would now be conducted in a joint and combined context.[350] The national joint organizational strategy exerted powerful pressures to align national and Navy deployment, employment and organizational strategies. Nevertheless, while overall national employment strategies emphasized Europe, the Navy's deployment strategy stressed the Pacific (ceding Europe and the Atlantic largely to the Royal Navy). Duplicate service airlift and sealift structures were retained throughout the war.[351] Once again the Army—and now Army Air Forces—deployed its own sealift.

Pacing the explosion of oceanic combat operations and the joint command and control transformation was an explosive growth in the fleet: From 790 ships to 3699, including 19 carriers and 21 battleships; from 3437 naval aircraft to 16,691; and from 284,000 officers and men in 1941 to more than 1.7 million in 1943[352] This growth was matched by similar growth in the Marine Corps, the Navy-directed Coast Guard, and the merchant marine.[353]

Surging for global and trans-oceanic war: 1943-1945



The last two years of the war saw an astounding growth of the fleet: From 3699 ships in 1943 to 6768 ships in 1945, including 28 fleet and light aircraft carriers and 23 battleships (and the designation of four of the Navy's admirals as fleet admirals, wearing five stars).[354] Naval aviation jumped from 16,769 aircraft to 41,064.[355] Likewise, the Marine Corps grew from 300,000 men in four divisions to 470,000 men in six divisions and four aircraft wings.[356] In March 1945, the Commandant of the Marine Corps was promoted to full general. A month later, the Commandant of the Coast Guard also received a fourth star. [357]

In 1943, the Navy realigned its combat force structure and implemented a new organizational strategy. Its centerpiece was the numbered fleet—a structure that remains the backbone of Navy operational organization 60 years later.[358] Forces in the Mediterranean became the Eighth Fleet, while those in the United Kingdom building up for the Normandy invasion became the Twelfth.[359] The South Atlantic Force became the Fourth Fleet, and the amphibious and other naval forces directly assigned to U.S. Army General MacArthur in the Southwest Pacific became the Seventh.

ADM William Halsey's forces fighting in the Solomons under General MacArthur's strategic guidance became the Third Fleet. And the enormous naval forces building up for the drive through the Central Pacific became Admiral Raymond Spruance's Fifth Fleet. The name "Tenth Fleet" was bestowed in May 1943 on the operational staffs in Washington that allocated anti-submarine warfare forces to the Atlantic Fleet and the Sea Frontiers, using sensitive operational and signals intelligence another innovation—operations analysis. 1943 also saw a rationalization of allied anti-submarine warfare deployments in the Atlantic, with the U.S. Navy leaving trans-Atlantic convoy escort to the allied navies and the U.S. Army Air Forces leaving anti-submarine warfare to the Navy.[360]

This enormous force was deploying far forward on all fronts: In the Atlantic and Mediterranean; and especially in the North, Central and South Pacific. By mid-1943, the

Italian Navy was out of the war, the German surface and submarine threat was broken although still dangerous, and the Japanese Navy was reeling from the losses at the Coral Sea and Midway, and in the Solomons and off New Guinea. By 1944, the Japanese lost most of their battle fleet in the climactic battles of the Philippine Sea and Leyte Gulf, the same year that the Royal Air Force sank *Tirpitz*, the last great German surface raider. By 1945, only Japanese kamikaze vessels and German submarines remained at sea to threaten the U.S. Navy.[361] In the Pacific, the Pacific Fleet Submarine Force, deploying far forward and mostly independent of the rest of the fleet, had shifted its employment strategy almost entirely to commerce raiding and destruction of Japan's merchant fleet at sea.[362]

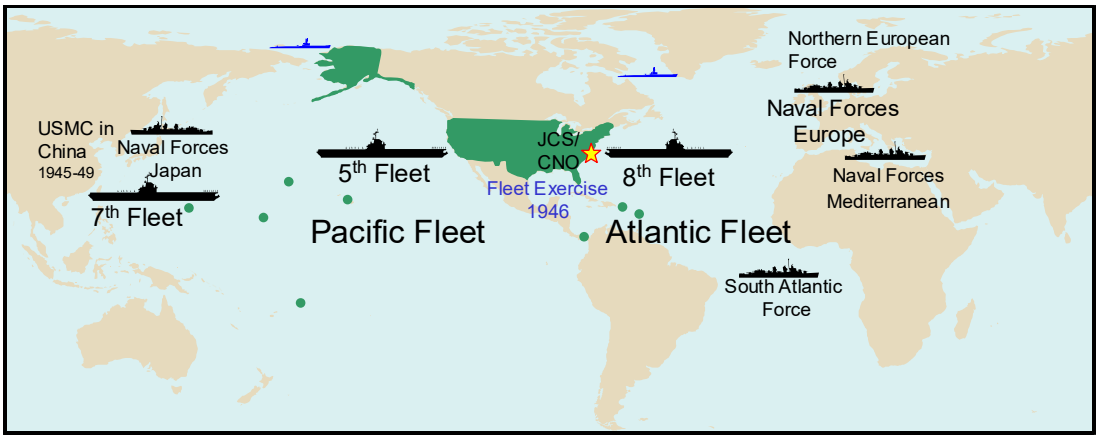
Meanwhile, with sea control becoming more and more assured in all theaters, the Navy looked more and more toward power protection as its *raison d'etre*—transforming itself from an oceanic to a trans-oceanic force and ushering in a new major era in U.S. naval history.[363] Admiral Nimitz, commanding the Pacific Ocean Areas and U.S. Pacific Fleet, had opened the Central Pacific drive in late 1943 by Fifth Fleet assaults in the Gilbert Islands by Marines (on Tarawa) and Army troops (on Makin). This had been preceded by Army landings in the Aleutians, supported by Navy North Pacific forces.

With the war moving away from the Solomons, Admiral Halsey deployed his Third Fleet Forces north to combine with Admiral Spruance's Fifth Fleet. From mid-1944 onwards, Halsey—as Third Fleet commander—and Spruance—as Fifth Fleet commander—alternated planning and operational responsibilities while presiding over the same, ever-growing, massive fleet of warships, centered on fast carrier and amphibious task forces.[364] Supported by the fast carriers and by their own naval gunfire escorts, the Third/Fifth Fleet Amphibious Force landed Marine and Army assault troops in the Marshalls, the Carolines, the Marianas, the Palaus, and on Iwo Jima and Okinawa; and prepared for landings in Japan itself.[365]

At the same time, General MacArthur and his Seventh Fleet were landing along the New Guinea coast in 1943 and in the Philippines in 1944—coordinating with and supported by Third and Fifth Fleet carrier operations.[366] In Europe, the 1943 Eighth Fleet assaults in Sicily and Italy were followed in 1944 by those on Normandy and then on the south of France.[367] These last were the only major assaults commanded by an American admiral—Vice Admiral Kent Hewitt—rather than a Royal Navy officer.[368]

Until the end of the war, the Royal Navy oversaw all combined operations in the Eastern Atlantic and Mediterranean. The British did not, however, contribute significantly in the Pacific until March 1945, when they deployed a fleet to operate there as a U.S. Fifth Fleet task force.[369] Another new combined partner in the Pacific in the spring of 1945 was the Soviet Navy, preparing to attack the northern Japanese islands and needing help to do so.[370]

Two surge fleets and some forward presence: 1945-1947



Transformation in the Navy's *employment* strategy—from an oceanic to a trans-oceanic force—was not immediately aligned with a transformation in the Navy's *deployment* strategy.[371] Instead, by the end of 1946 the fleet had reverted to a familiar default 20th-century deployment strategy: Keeping—and exercising—powerful combat-credible surge battle fleets at home on both coasts, as well as active smaller presence forces forward. [372] The difference was that, forward in the Northwest Pacific, the Navy still also deployed powerful residual forces of the fleets that had just fought their way there, supported by a string of forward advanced bases, recently seized at great cost. These forces were busy with the occupations of Japan, Korea and the western Pacific Islands, and supporting Marines in China. With World War II just ended and the Cold War not yet totally in evidence, the Navy—and the nation—were not yet ready to abandon a deployment strategy of husbanding military strength at home in time of peace, while keeping just enough force forward to occupy its beaten foe and show American interest elsewhere.

In late 1945, the great fleets of World War II were disestablished and/or drastically reduced in size and power (while undergoing a dizzying series of name changes). The wartime Mediterranean Eighth Fleet was reduced to a small but active forward-deployed cruiser-destroyer squadron—Task Force 125—and its many bases were all rolled up.[373] It was complemented by a new and even smaller Northern European Force set up in early 1946.[374] A new Tenth Fleet and then a reborn South Atlantic Force briefly deployed to South American waters, then disappeared from the Navy's organization, all in 1946.[375] The Third and Fifth Fleets participated briefly in the occupation of Japan and then returned to the West Coast of the United States. A new and much smaller command, Naval Forces Japan, was set up as the naval component of the occupation force there. Meanwhile, the Seventh Fleet at long last chopped to CINCPAC's command, to patrol Chinese waters and to land and support Marines in North China and Army troops in Korea.[376] It was now finally assigned a fast carrier force, alongside an amphibious force, North China Force, South

China Force, and reborn Yangtze Patrol.[377] Based in the Marianas, it began exploring advanced bases in the newly-independent Philippines. The Mahanian strategy of seizing and—now—holding advanced fleet bases still held sway in the Pacific.[378]

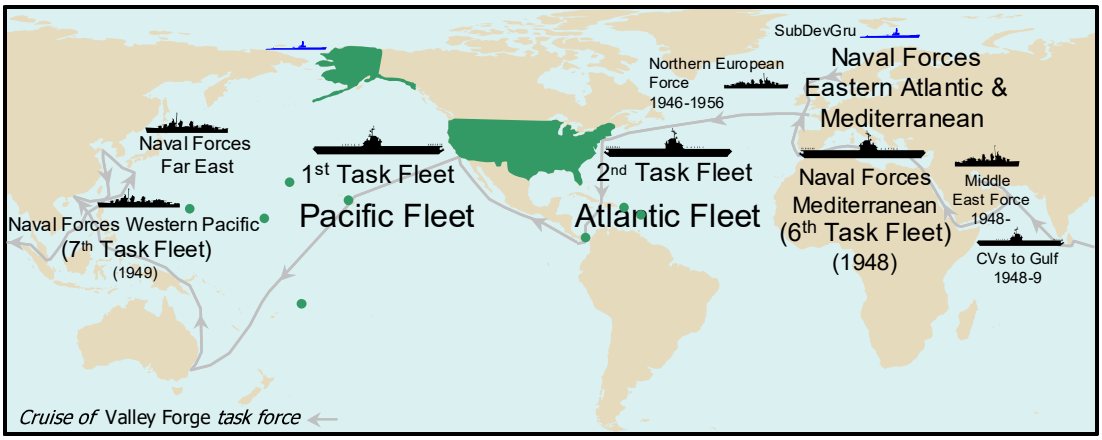
The overall construct of an Atlantic and a Pacific Fleet, in place since 1941, remained. The position of Commander-in-Chief U.S. Fleet was disestablished in the fall of 1945, however, and the Chief of Naval Operations inherited command of the Navy's operating forces, under the oversight of activist Secretary of the Navy James Forrestal.[379] Most of the great task forces, however, with their fast carriers and battleships, came home in 1945 and 1946. Those not de-commissioned were reconstituted in early 1946 as new home surge fleets: The Fifth on the West Coast and a new Eighth on the East. The wartime imbalance in fleet strength between Pacific and Atlantic was rapidly readjusted toward equality.[380] Pride of place now went to the Eighth.[381] If a new threat were to emerge, naval planners thought it would be the Soviet Union.[382] The most advantageous point from which a surged naval force could hit at that nation was in the eastern Mediterranean.[383] The Navy also began to rebuild its forward forces in the Mediterranean.[384] Furthermore, the Navy began to deploy task forces to experiment with operations at-sea in the sub-Arctic.[385]

January 1947 saw some wholesale realignments in the fleet's organizational strategy: The Fifth and Eighth Fleets became the First and Second Task Fleets respectively, and remained the Navy's premier striking forces. Forward numbered fleet designations were abolished, replaced by a variety of forward commands in the Eastern Atlantic and Mediterranean, Mediterranean, Western Pacific, and Far East. Prewar State Department constraints on significant Navy forward deployments still lingered.[386]

The active force levels that these fleets could draw on were modest. The 6800-ship navy of 1945 had 842 ships in 1947, with only 14 carriers and 4 battleships.[387] The U.S. merchant marine, however, swollen by wartime building, accounted for 60 per cent of the world's merchant tonnage.[388] Meanwhile, the Coast Guard reverted to Treasury control at the beginning of 1946, and the Marines went from six divisions to two—one on the East Coast at Camp Lejeune and one on duty in North China, returning to the United States in 1947.[389] Still, the commandants of each of the other sea services kept their wartime four-star rank, and relationships among the three sea services would never be quite the same again.

The Army and its Army Air Forces (AAF) were also cut drastically from their wartime peaks, and their affairs continued to be intertwined with those of the Navy. The wartime Joint Chiefs of Staff and the notion of joint theater commands were retained. A new Outline Command Plan was promulgated in December 1946, redrawing joint and service command boundaries and directing establishment in 1947 of a raft of new joint commands.[390] Also in 1946, a new AAF Strategic Air Command stood up, charged with delivering the nation's new atomic bombs, under the oversight of the Joint Chiefs. Meanwhile, the combined commands with the British were disestablished.[391]

Creating combat credible forward presence: 1947-1950



During the latter part of the 1940s, the *peacetime deployment* strategy of the fleet was transformed, aligning now not only with the trans-oceanic *employment* strategy adopted toward the end of World War II, but also with the capabilities that resulted from the war's *procurement* strategy, and with the emerging planned *wartime employment* strategy against the Soviet Union.[392] Combat-credible forward presence independent of advanced bases became the characteristic way the fleet would deploy for the next half-century and more.

Current peacetime procurement strategy, however, seriously constrained fleet deployment capabilities and options. Fleet size decreased from 842 to 634 ships, and the number of active carriers dropped from 14 to 11.[393] Only 16 new ships were built in the period 1946 through 1950.[394] The Marines were also cut back. They ended their stint as an occupation force in China in 1949.[395] By early 1950 they consisted of 75,000 officers and men and only two divisions.[396] The Army was cut even more severely.[397]

Thoughtful admirals sought to apply skills gained during the war to the emerging American national security policy of containing the Soviet Union. Abandoning the decades-long preference of the Navy's leaders for well-drilled home fleets over forward deployments, they now concluded, in the words of Admiral Forrest Sherman, "There are a lot more things you can *say here* and *do there*, when your fleet is *there*, than there are that you can *say* or *do* when your fleet is *here*." In other words, declaratory and employment strategies would be more effective if aligned with a combat-credible forward deployment strategy.[398]

One option explored was a brief return to global cruising, in the tradition of the Wilkes Expedition, *Ticonderoga*, and the Great White Fleet. From 1947 through 1949, two fast carrier task forces were successively deployed on round-the world cruises with major politico-military objectives.[399]

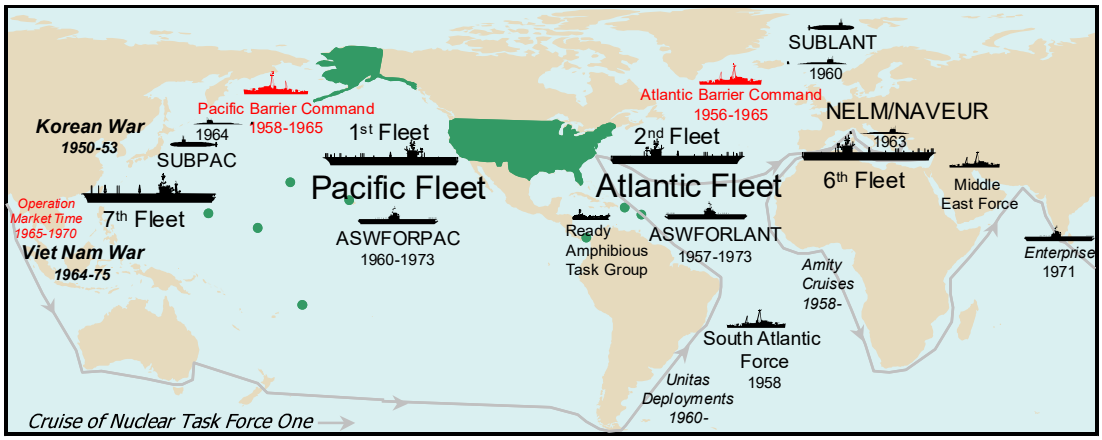
The preferred option, however, was *permanent* combat-credible forward presence. The centers of combat readiness in the fleet now shifted from cruising and surge forces to forces on forward station—first in the Mediterranean, and then later in the far Pacific. Thus, while in late 1945 and 1946 the Navy deployed carriers only intermittently to the Mediterranean, by 1947 there was now always a carrier there—often a CVB with a full air wing.[400] Moreover, in early 1948, an amphibious task force permanent forward presence in the Mediterranean began.[401] In 1949, the first submarine deployed there.[402] By 1950, the permanent, balanced combat-credible forward fleet that would endure in the Mediterranean throughout the Cold War was in place there.[403] *Organizational* realignment paced the change: Carriers deployed to the Mediterranean were now commanded from London, not Norfolk. Command of Naval Forces Mediterranean had gone from a rear admiral to a vice admiral in 1946, and the force was itself renamed the Sixth Task Fleet in June 1948.[404]

Meanwhile, the Navy had ended its permanent carrier presence in the western Pacific in late 1947. In 1948 and 1949, the western Pacific saw only intermittent American carrier deployments.[405] Nevertheless, Naval Forces Western Pacific became the Seventh Task Fleet in August 1949, focused on Southeast Asia.[406] In January 1950, however, the Navy again deployed a fleet carrier and its escorts to the western Pacific on a permanent basis.[407] Operations continued elsewhere, including the sub-Arctic.[408] The period also saw the beginnings of U.S. Navy presence in the Persian Gulf.[409] In 1948, U.S. Navy warships visited Indian and Pakistani ports.[410] And in 1949, Atlantic Fleet attack submarines began to deploy experimentally far forward in the Norwegian and Barents Seas.[411] Meanwhile, the nation's naval forces—whether forward deployed, surge deployed or on extended cruises—continued to be used in an actual employment strategy of responding to crises, in Greece, Turkey, Italy, Israel, the Persian Gulf, Norway, Berlin and China.[412]

Navy joint relationships had been altered considerably during the war. In 1947, Congress created a new National Defense Establishment that subsumed not only the old War and Navy Departments but also a new Department of the Air Force.[413] Also in 1947, the new Outline Command Plan was implemented, confirming peacetime joint commands under Army generals in the Far East, Europe and the Caribbean. The Mediterranean and the Atlantic remained Navy fiefdoms, as did the Pacific (although initially shorn of Japan, Korea, the Philippines, and the Marianas.[414] U.S. Navy forces were assigned to naval components within all these joint commands.[415]

Congress also enshrined the Joint Chiefs of Staff in law. Joint planning therefore continued apace. Combined planning—dormant since the end of World War II—was revived in 1948 by in secret Anglo-American talks. Small combined operations with the British in continued in China.[416] By 1949 the North Atlantic Treaty was signed, and U.S. naval officers were heavily involved in maritime regional planning groups.[417] U.S. Navy officers also helped build embryonic German and Japanese patrol and mine clearance units. American warships participated in their first United Nations operation, off Palestine.[418]

Two forward presence hubs and two forward wars: 1950-1972



With the permanent forward deployment of carrier task groups in the western Pacific starting again in January 1950, the transformation of the Navy's deployment strategy was all but complete.[419] A Sixth Fleet with permanent rotational carrier, surface, amphibious, submarine, and support elements was continuously deployed forward in the Mediterranean.[420] A similar force—initially divided between the Seventh Fleet and Naval Forces Far East—was continuously deployed forward in the western Pacific and—toward the end of this period - occasionally in the Indian Ocean.[421] The Korean War saw a build-up of both forward fleets, just as it also saw major movements of U.S. Army and Air Force units to the Far East and Europe.[422] The two forward fleets were deployed in more or less the same way by the mid-1950s, as the earlier focus on the Mediterranean dissipated.[423] Henceforth, each forward fleet routinely included at least two carrier task forces.

The employment strategy of the Korean War—with its amphibious assaults and evacuations, support to ground troops, blockades, and minesweeping—did not cause the Navy to deviate much from its deployment strategy of two combat-credible fleets forward. Neither did the Vietnam War—with its ground troop support operations, air strikes, and blockades.[424] The Seventh Fleet was often called upon for combat operations during this period.[425] The Sixth Fleet was equally as capable of doing so.[426] Combat—including nuclear strike—was only part of each fleet's mission set. They were also designed—and were in fact used heavily—for naval diplomacy, operations other than war, crisis response, and limited war (later termed smaller-scale contingencies).[427] Each forward fleet was considered capable of carrying out missions across the entire spectrum of naval operations.[428] Smaller forces were deployed forward intermittently to Middle East, Latin American and African waters.[429] Forward deployments were normally from ports in the United States, but a few ships were permanently forward based around the world as well.[430]

Some surge deployments continued. Starting in 1952, the Second Fleet deployed to the Northeastern Atlantic every year or so for a week or two for a NATO exercise.[431] Crises —as off Suez in 1956—also occasionally triggered Second Fleet surges.[432] Occasionally, a highly publicized round-the-world cruise deployed, especially to show off the capabilities of nuclear-powered warships, such as Nuclear Task Force One.[433]

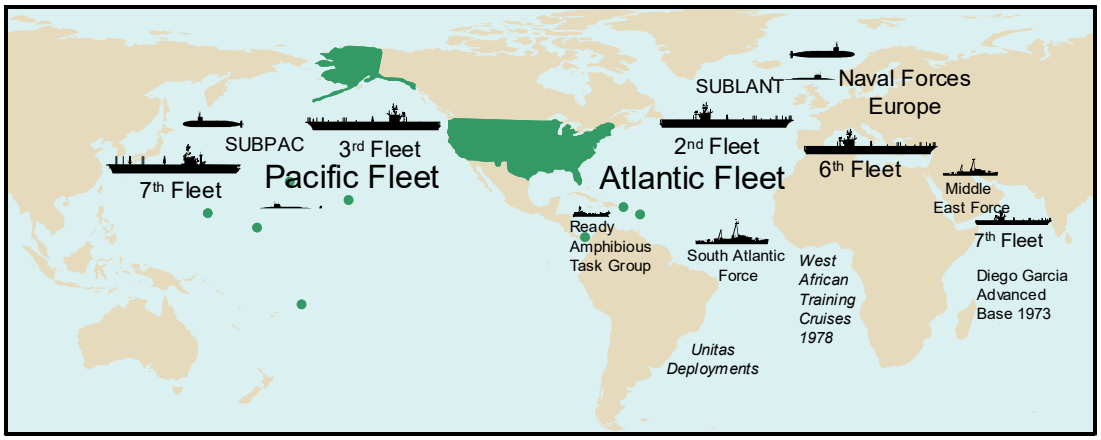
Despite many fluctuations, the fleet—at 641 ships—was as large in 1973 at the end of the Vietnam War as it had been in 1950 at the start of the war in Korea.[434] Carrier numbers had climbed from 11 in 1950 to 26 in 1962, before slowly dropping.[435] The number of attack submarines stayed steady at about 100, while a new class of strategic submarines ramped up from one in 1960 to 41 in 1967.[436]Meanwhile, the number of Navy Department aircraft dropped from over 14 thousand in 1950 to less than eight thousand in 1972.[437]

In discussing Navy deployments, it becomes increasingly difficult to disentangle Navy actions from larger joint or national efforts. The CNO's influence on Navy deployment strategy eroded when he was taken out of the operational chain of command by a 1958 Defense Reorganization Act.[438] While service views and decisions were still important, the growth in joint and defense civilian power and structures during this period was considerable.[439] The period was also one of great national concern regarding nuclear weapons.[440] During the 1950s and 1960s, to deter Soviet nuclear attack, the United States built up a formidable arsenal of long and short-range nuclear bombs, missiles and shells, some deliverable from ships. In addition to carrier nuclear strike aviation, the Navy's most important contribution to the national nuclear arsenal after 1960 was the strategic nuclear submarine armed with sea-launched ballistic missiles with nuclear warheads.[441]

Combat credible forward presence was not the only Navy deployment strategy during this period, however. During the mid-1950s, the Navy, like all services, deployed significant forces for homeland defense surveillance, early warning and air defense missions for about a decade.[442] More important than this brief foray into homeland defense from air attack were Navy deployments during this period to defend the nation from missile attacks from the sea by Soviet submarines.[443] Marines during this period routinely deployed as part of the forward fleets. The Corps continued its climb to equal service status.[444] At the same time, Coast Guard relationships with the Navy waned and waxed: The Coast Guard contributed minimally to the war effort in Korea, but it played a major role in Vietnam.[445] In most years during this period the Air Force took the largest service share of the defense budget and had 200 thousand more people in uniform than did the Navy.[446]

It was an age of multi-national deployments and operations, especially at sea. Warships from ten other nations deployed to the Korean War.[447] Warships from five others deployed to the 1962 Cuban Quarantine.[448] Australian, Thai, Filipino and South Korean Navy units participated in the Vietnam War.[449] Great and small NATO maritime commands were created.[450] Large coalition exercises were held under the auspices of all of America's numerous new alliances, including NATO, SEATO, ANZUS and several bi-lateral agreements.[451] Combined doctrine publications were widely disseminated and used.[452]

Two forward hubs: one now forward-based: 1972-1979



Combat-credible forward presence in two major hubs—and independent forward submarine operations—continued as the Navy's deployment strategy during the 1970s.[453] In the early years of that decade, however, the Navy made four shifts within that strategy. First, while continuing to forward *deploy* combat-credible forces forward in the Mediterranean and the Western Pacific, the Navy sought to forward *base* those forces in-theater. This would reduce long transit times, allow a larger fraction of the fleet to operate forward at any one time, and perhaps contribute to improving the quality of life of Navy sailors. The Navy had, in fact, already been basing a few ships forward for a while.[454] What the Navy now proposed was to base entire carrier task forces, afloat staffs, and other forces forward.[455]

Plans for the Mediterranean initially went well, and—in addition to the flagship and the submarine tenders—European ports briefly hosted a destroyer squadron, a carrier task force staff, and a patrol gunboat squadron with its tender.[456] Political and budgetary difficulties did not allow these initiatives to last, however.[457] In the Pacific, things went much better, causing a major shift in how U.S. naval forces deployed forward henceforth. From 1972-73 on, Japanese ports not only hosted the Seventh Fleet command ship and various auxiliaries, but also the ships of carrier and amphibious task forces, plus an air wing (Marines for the amphibious ships could be drawn from those on Okinawa).[458] Thus, after 1973, of the two numbered combat-credible forward fleets, the Seventh was now largely forward *based,* while the Sixth remained forward *deployed*. And each routinely included two carrier task forces and an amphibious ready group.

The second shift during the 1970s within the combat credible forward presence deployment strategy was the establishment of an intermittent but routine carrier task force presence in the Indian Ocean by the U.S. Seventh Fleet.[459] This aligned Navy deployment strategy with emerging national grand strategy.[460] By 1979, Seventh Fleet carrier or surface combatant task forces were an almost permanent presence in the Indian Ocean,

intermittent deployments of amphibious task forces were beginning, and a new permanent advanced base had been created at Diego Garcia.[461]

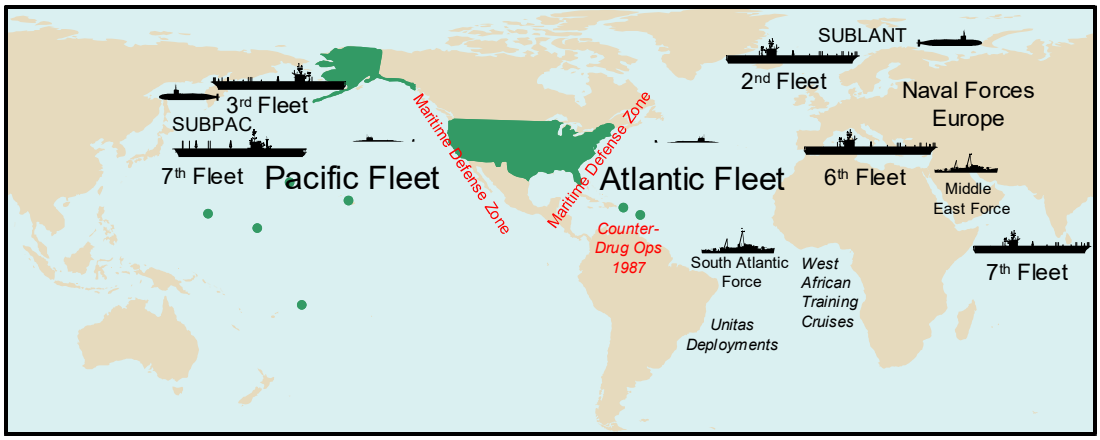
In a third change, a Third Fleet was re-created from the First Fleet and the Anti-Submarine Force Pacific in February 1973, with headquarters ashore in Hawaii. The Anti-Submarine Force Atlantic was also disestablished, and its missions taken over by other Atlantic Fleet commands and the fleet commander himself. These changes were driven by changes in systems and tactics, as well as cuts in Navy force levels.[462] The fourth change in deployment strategy during this period was the resumption of deployments to the West African littoral. In 1978, the South Atlantic Force initiated annual surface ship West African Training Cruises (WATC).[463]

These refinements of the Navy's Cold War deployment strategy sought to align with the Navy's *actual* peacetime employment strategy of global forward presence, its re-emphasized *planned* wartime employment strategy of forward operations on the Soviet flanks and protection of allied shipping, and a lack of enthusiasm in the nation for limited war strategies in the bitterness and confusion following the Vietnam War.[464] The requirements of the planned wartime employment strategy, however, were increasing, as the Soviet Navy became a much more potent force during the decade of the 1970s, and as anti-access threats to the U.S. Navy operations on the world's littorals increased.[465]

At the same time, U.S. Navy force levels to implement the Navy's deployment strategy were sharply reduced during the decade. Active U.S. Navy involvement in the Vietnam War ended in 1973.[466] Also, the World War II and immediate postwar-era fleet was wearing out. The Navy shrank from 885 ships in 1969 to 521 by 1981.[467] Aligning its organizational strategy accordingly, the Navy also cut back on the numbers of type commands and eliminated Naval Districts and Sea Frontiers (whose operational responsibilities for homeland defense had in any event atrophied).[468]

Meanwhile, the Marines deployed prepositioned equipment to Norway, and practiced flying in to that country to marry up with the equipment and then redeploy north. The Marine Corps also continued to develop as a separate service in its own right: In 1978, the commandant was made a full member of the Joint Chiefs.[469] A milestone was reached in joint Navy-Air Force relations in 1976 with agreement to use B-52 strategic bombers to conduct long-range maritime surveillance and anti-surface ship warfare at sea.[470] By the 1970s, annual Navy Department budgets had caught up with and surpassed somewhat those of the Department of the Air Force.[471]

Add a third forward hub and surge more: 1979-1990



The decade of the 1980s saw two more major changes within the continuing larger deployment strategy of combat-credible forward presence: The final creation of a third forward deployment hub in the Arabian Sea; and a revitalization of the surge role of the home fleets.[472] Also, forward-basing for strategic submarines ended; the Navy's organization for coastal homeland defense was revitalized; Navy counter-drug deployments began; battle group deployments became more varied; global Navy cruising increased;[473] and aggressive forward operations asserted the nation's Freedom of Navigation rights.[474]

In early 1979 the American Embassy in Iran was seized, and a military operation to rescue embassy personnel failed dismally.[475] A little later, the Soviets invaded Afghanistan. In 1980, Iraq invaded Iran, beginning an eight-year war that endangered tanker traffic in the Gulf. As a result, the intermittent Seventh Fleet battle group deployments into the Arabian Sea became permanent.[476] New Military Sealift Command prepositioning ships deployed to Diego Garcia.[477] And the U.S. Navy became embroiled in the Tanker War.[478] A true third U.S. Navy forward deployment hub had emerged (and with it a reduction from two to one in the number of carrier battle groups normally forward in the other two hubs).[479]

The late 1970s had seen a change in U.S. national security policy focus not only away from Vietnam and toward the Indian Ocean, but also toward countering an ongoing Soviet build-up in Europe, at sea and elsewhere.[480] This change sparked increased attention on the planned employment strategy for the two "home fleets," the Second and Third, and a conscious Navy realignment of its planned employment, actual employment, and deployment strategies.[481] These fleets and their predecessors had always had planned wartime surge roles. By the mid-1980s, however, the Third Fleet was exercising far more its planned wartime role as a multi-carrier fleet targeting Soviet Pacific strongholds.[482] The Second Fleet was likewise focusing on exercising multi-carrier operations forward off Norway, in a NATO context.[483] To create opportunities for more multi-carrier exercises and other innovative deviations from routine deployments, a scheduling program known as FLEXOPS was instituted in the early 1980s.[484] Innovative submarine deployments forward

also intensified, especially under the Arctic ice cap.[485] Efforts were made to more closely integrate independent nuclear-powered submarines into carrier battle group operations.

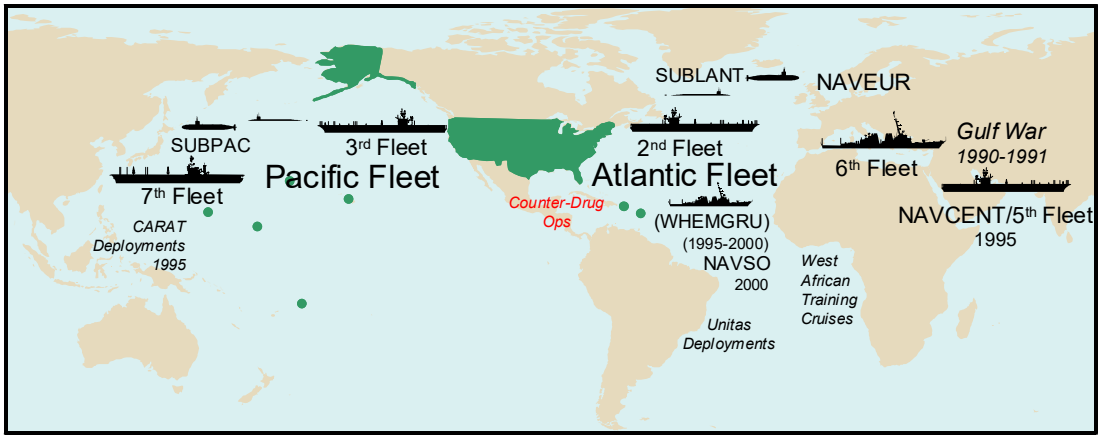
In the traditional Mediterranean and Western Pacific forward hubs, as well as the Caribbean "Near Abroad", Navy forces deployed in response to numerous crises and other situations.[486] The increased deployment demands on the fleet caused some very lengthy deployments and increased sailor dissatisfaction.[487] In 1985, CNO Admiral James Watkins announced a policy of six-month maximum peacetime deployments, thus setting a bound on deployments of combat credible forces forward in the absence of war.[488]

During this period also, the Navy -anticipating or reacting to joint command decisions—stood up new Naval Space and Naval Special Warfare Commands. These—like the Military Sealift Command—became the naval components of new joint functional combatant commands. It was the Navy's Military Sealift Command that deployed the nation's forward afloat prepositioning force ships.[489] Also, in 1984, the Navy revitalized its homeland defense command structures by instituting new Maritime Defense Zones (MDZs) on each coast, principally manned by Coast Guard and Naval Reserve personnel.[490] The Navy deployed new mine-countermeasures ships along the coasts and began to use civilian craft for this function as well.[491] In 1987, the Navy began to deploy forces in the Caribbean to help stem the flow of drugs into the United States.[492] Also, Navy responsibilities to defend the Panama Canal and its approaches changed during this period, with the cession of the Canal Zone and the Canal itself to Panama in 1979. At the same time, introduction of the new long-range Trident strategic ballistic missile system changed the deployment strategy of the ballistic missile submarine force. Capable of reaching the Soviet Union from a much wider ocean space, the new systems meant the demise of the forward ballistic submarine sites and tenders.[493]

After 1986, all these deployments became increasingly embedded in joint operations and command structures, with the signing of the Goldwater-Nichols Act into law.[494] This act reduced still further the Navy's role as an autonomous institution in conceptualizing and implementing naval strategies. While still the nation's chief naval strategic advisor, the Chief of Naval Operations would henceforth take a back seat to the individual combatant commanders—especially the regional CINCs—in deploying and employing naval forces.[495] His focus became increasingly on organizing, training and equipping those forces.[496] These forces had shrunk greatly during the 1970s, but had risen a bit during the 1980s—from 521 ships in 1981 to 594 in 1987—in a conscious Navy alignment of its "600-Ship Navy" procurement strategy with its "Maritime Strategy" declaratory strategy, its FLEXOPS deployment strategy, and its planned and actual employment strategies.[497]

Meanwhile, the Marine Corps continued to develop as a separate service in its own right.[498] The Air Force began deploying B-52s equipped with Harpoon anti-ship missiles in late1983.[499] The Coast Guard picked up new demanding oil spill response and counter-drug responsibilities, but declined to deploy to the Gulf for the Tanker War.[500] The Merchant Marine had again faded to insignificance.[501]

Combat-credible forward presence in 3 hubs: 1990-2001



The turn of the decade from the 1980s to the 1990s saw four important changes (and some minor ones) in the Navy's deployment strategy.[502] None of them, however, did more than fine-tune the basic model of combat-credible forward presence in three hubs (the concept of a "hub" being somewhat elastic, allowing for deployments between hubs, as well as to and from them).[503] First, by 1991 the Warsaw Pact had crumbled and the Soviet Union had disintegrated.[504] Surge deployments to the North to practice fighting the Soviet armed forces therefore became unnecessary.[505] The Second and Third Fleets retreated to again focus more heavily on their readiness and training functions, in support of the forward fleets. The Second Fleet also became a key joint task force component in the Caribbean, deployed off Haiti in 1993 and 1994 as part of joint operations there.[506] Even the attack submarine force shifted some forward deployments from the Arctic to warmer waters.[507]

Second, 1990 brought an Iraqi invasion of Kuwait—and with it a host of subsequent operations and over a decade of requirements for increased Navy forward deployments in the Arabian Sea and Persian Gulf.[508] Third, the Congress in 1989 designated the Defense Department as lead agency for detecting and monitoring the illegal drug traffic entering the United States, increasing Navy deployment requirements in the Caribbean.[509]

A fourth change seemed minor at the time, although it would prove important later. Absent a Soviet special warfare and mining threat to U.S. ports, the MARDEZs set up in the 1980s shifted their deployment strategies forward. Coast Guard Reserve Port Security Units (PSUs) and Naval Reserve Mobile Inshore Undersea Warfare Units deployed to Bahrain and other forward potentially threatened areas, allowing their coastal maritime defense responsibilities at home to atrophy.[510] (At the same time, however, there was a small but innovative revival of the long-languishing state naval militias for homeland defense.)[511]

All these changes solidified a U.S. Navy view that its combat-credible forward deployment strategy was in fact, the central organizing concept and principal force-sizing criterion for the service.[512] The Navy's declaratory strategy was accordingly realigned, with the promulgation of *Forward . . . From the Sea* in 1994.[513] The Navy realigned its organizational strategy as well, especially for the waters around Southwest Asia and Latin America.[514]

Realignment of the Navy's procurement strategy followed suit: By the end of 2001, the Navy's active force dropped to 337, from 592 active ships in 1989.[515] Without the huge Soviet submarine fleet to hunt, attack submarine forces fell from 102 in 1987 to 54 in 2001, the maritime patrol aircraft force was cut back, the SOSUS system was rolled up, and the surface combatant force was both cut and reconfigured to emphasize strike and air defense missions.[516] On the other hand, force levels for carriers during that timeframe only dropped from 14 to 12, while the strike and surveillance capabilities of the fleet's remaining ships, aircraft and weapons systems increased up markedly.[517]

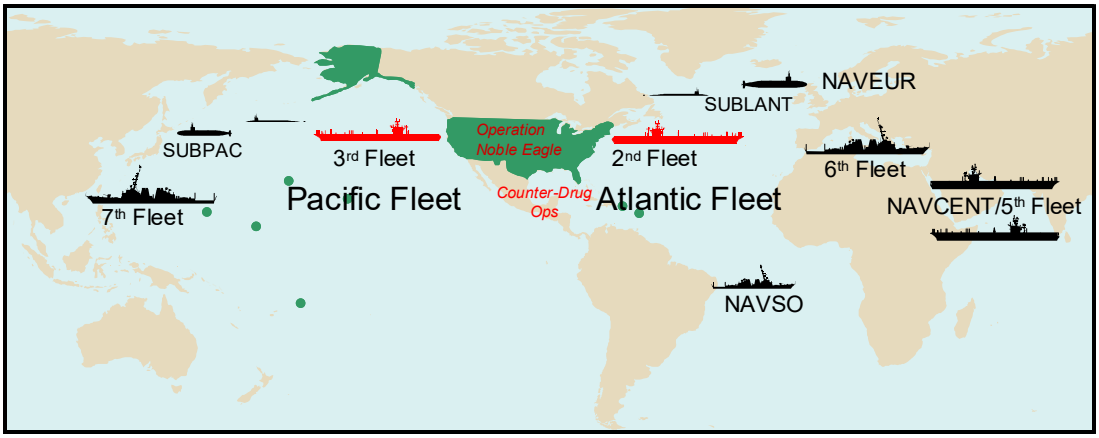
The number of active duty Navy personnel dropped from 579,000 in 1990 to 373,000 in 2001. The last time the nation manned a 300-plus-ship Navy, however—during the interwar period—the Navy had had less than 100,000 personnel on active duty. In 1917, the Navy had manned its 340-ship Navy with less 200,000 on active duty).[518]

All of these changes and realignments—even in Navy declaratory strategy—took place within joint contexts.[519] As an increasingly co-equal service, the Marine Corps had significant influence on the declaratory strategies of the Department of the Navy.[520] A "Base Force" concept devised by the Chairman of the Joint Chiefs of Staff and his Joint Staff drove the force reductions that framed the Navy's procurement strategy.[521] Even the Navy's deployment strategy itself became institutionalized within a joint framework—the Global Naval Force Presence policy (GNFPP).[522]

Likewise, Navy organizational strategy changes were made within the framework of joint Unified Command Plan changes. Joint combatant commander geographic areas of responsibility now comprised both land and water areas.[523] Even the strategic submarine force, long under the operational command of the Atlantic, Pacific and European commanders, now shifted to a new joint Strategic Command in 1992.[524] There was also a movement—especially within NATO - toward the institution of combined joint task forces (CJTFs) as well.[525] Another significant change was the standing up in 1992 of Marine Corps service components under each unified commander.[526]

Joint Task Forces were increasingly planned for and exercised.[527] Coalition operations at sea by now had become a way of life: Multi-national naval forces deployed with U.S. Navy units to the operations off Liberia, Somalia, Iraq, Yugoslavia and Haiti, to display coalition solidarity and beef up at-sea forces, especially for maritime intercept operations (MIO).[528]

Immediate deployment response to 9/11/01 attacks



On September 11, terrorists affiliated with the Al-Qaeda terrorist group hijacked four American airliners and crashed three of them into the World Trade Center towers in New York City and the Pentagon in Arlington, Virginia. (The attack on the Pentagon had an unfortunate but temporary impact on the making and monitoring of Navy deployment strategy: It destroyed the spaces occupied by the Navy's strategists and by the Navy's Command Center personnel, wounding or killing many of them.)[529]

Also, within a month, mail tainted with the deadly poison anthrax was found on Capitol Hill.

The deployment strategy followed by U.S. naval forces in responding to the attacks was immediate and in part innovative.[530] Carriers and surface combatants put to sea within hours of the attacks and deployed off New York, the mid-Atlantic coast, West Coast ports, Hawaii and Guam, providing offshore air defense capabilities.[531]

They remained in this posture for about a week, while naval units already forward deployed converged on the Arabian Sea for Central Command-directed joint operations against Al-Qaeda sites in Afghanistan—"Operation Enduring Freedom."[532] *Kitty Hawk*, the Seventh Fleet carrier forward-based in Japan, made plans to deploy to the Arabian Sea as an Afloat Forward Staging Base (AFSB), taking only a small part of her air wing but reserving space for 20 U.S. Special Operations Forces helicopters.[533]

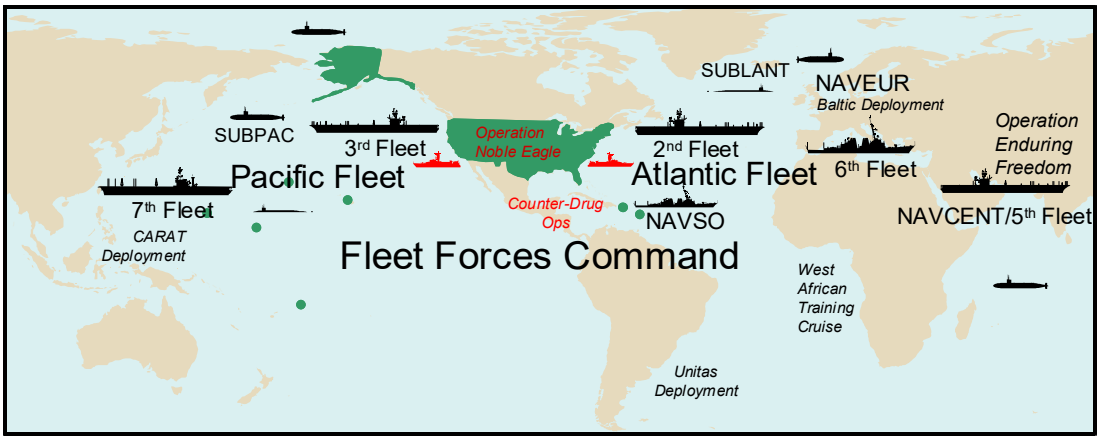
Also, the hospital ship *Comfort* from the Naval Fleet Auxiliary Force, deployed from Baltimore to New York City to provide sea-based hospital and support services. *Denebola*, a fast sealift ship, already at Staten Island, provided sea-based support services as well.

A squadron of naval reserve strike fighter aircraft joined U.S. Air Force fighters under the direction of the North American Aerospace Defense Command (NORAD) in patrolling the skies over the President's home in Crawford, Texas—part of Operation "Noble Eagle."[534] E-2C Hawkeye early warning aircraft were deployed to monitor American air space.[535]

The Marines deployed their small Chemical Biological Incident Response Force (CBIRF) to the U.S. Capitol, and soon thereafter established a new 4th Marine Expeditionary Brigade (Anti-Terrorism), largely from existing units. More importantly, Marines and their aircraft on forward amphibious ships deployed with those ships to waters within range of Afghanistan.[536]

One possible naval homeland defense deployment strategy action *didn't* occur: The Maritime Defense Zones (MARDEZs)—Navy-run coastal defense commands manned largely by Coast Guardsmen and naval reservists - were *not* deployed.[537] Instead, the Defense Department's Chief of Naval Operations offered assistance to the Transportation Department's Commandant of the Coast Guard.[538] The Commandant—retaining operational command of his ships, boats, aircraft and personnel—redeployed them throughout the American littoral, concentrating heavily on the New York City area.[539] This included units that had been otherwise deployed in search-and-rescue, law enforcement, and counter-drug operations. The Navy and the Coast Guard also increased the manning of their recently activated Joint Maritime Intelligence Center.[540]

U.S. Navy deployment strategy in 2002



As noted at the start of this paper, in 2002 the U.S. Navy was the world's pre-eminent naval force and had been so for at least six decades.[541] It had 382,000 officers and men on active duty and comprised at least 337 active ships.[542] Most of the Battle Force ships not undergoing extensive maintenance and repairs were assigned to one of the two great geographical fleets—the Atlantic and Pacific—and deployed in one of the five numbered fleets: the Second, Third, Fifth, Sixth, and Seventh. The first two of these normally operated off the East and West coasts of the 48 contiguous United States—to train, to provide a surge force in case needed farther forward, and, increasingly, to provide homeland defense. Occasionally the Second Fleet, which had some responsibilities within NATO, deployed forward for a week or two to the Norwegian or Baltic Seas.[543]

The other three fleets—the Fifth, Sixth, and Seventh—were deployed forward in the Gulf and Indian Ocean, the Mediterranean and Black Seas, and the Western Pacific, respectively, with the bulk of the Seventh Fleet forward based in Japan.[544] Annual Naval Forces Southern Command "Unitas" deployments were made off South America, and a force occasionally cruised off West Africa. Submarines operated forward both independently and as part of the numbered fleets.

This deployment strategy had been generally followed for over a decade, although there had been a major but brief perturbation during the weeks following the September 2001 terrorist attacks.[545] In its general characteristics, it was not appreciably different from the deployment strategy followed by the fleet for most of the more than half a century that the United States had been the world's leading naval power.

The Navy Department in 2002 included over 380,000 U.S. Navy officers and enlisted personnel, 173,000 Marine Corps officers and enlisted, and 183,000 civilians. The

Department's annual budget stood at over $100 billion dollars—more than the budgets of either the Departments of the Army or Air Force.[546] It was also more than thirteen times the size of the budget of the U.S. Coast Guard, a much smaller but still significant maritime armed force of over 200 cutters, 1400 boats, 200 aircraft, and 36,000 people, assigned to the U.S. Department of Transportation.

Navy units operated under the command of the nine combatant commanders.[547] In the wake of the September 2001 attacks, a new U.S. Northern Command was scheduled to be set up in October 2002, responsible for the military contribution to the direct defense of the U.S. homeland. Also, the U.S. Space and Strategic Commands were to be consolidated.

Anticipating these and potential future changes, and to standardize predeployment training of all naval forces—the Navy had already instituted the most sweeping change to its fleet organization since the demise of the U.S. Fleet in 1941. On October 1, 2001, the Navy stood up a new Fleet Forces Command as an additional hat for the Commander in Chief of the Atlantic Fleet.[548] The fleet was on its way to a reconsolidation, this time as part of a larger joint process that had seen the redesignation of the Atlantic Command as the Joint Forces Command in 1999, and a reorganization of U.S. Air Force combat units in the United States into an Air Combat Command, assigned to the Joint Forces Command. [549]

Nevertheless, in spite of the newly heightened sense of threat to the homeland and major changes in fleet organization at home, U.S. naval forces still remained wedded in 2002 to a deployment strategy centered on combat credible forward operations in three hubs. "Sea Power 21," however, asserted intent to "spread the striking power and presence of the United States Navy and the United States Marine Corps team more widely around the world."

In 2002, the principal non-routine forward operation being conducted was Operation Enduring Freedom, against the Al-Qaeda network in Afghanistan.[550] At the operation's peak, four carrier battle groups (CVBGs) and two amphibious ready groups (ARGs) were on station, conducting combat operations. By the summer of 2002, there was one CVBG and one ARG on station. The Navy's innovative investments in joint interoperability and precision strike munitions during the preceding decade were proven prescient: The maritime portions of the joint campaign included deep, precise sea-based air strikes and deep Marine insertions.

The Fifth Fleet commander also oversaw a combined Maritime Interdiction Operation (MIO) aimed at denying Al-Qaeda use of the seas. As of May 2002, ships and aircraft from at least 10 nations were participating.[551] In the Straits of Malacca, the Navy instituted a new anti-piracy patrol.[552] In the Mediterranean, the Sixth Fleet was searching for terrorists at sea.[553] Also, the Navy assigned its Patrol Coastal (PC) vessels and personnel to U.S. Coast Guard commanders for homeland defense missions.[554]

III. Deployment strategies and innovation

In the previous section, we surveyed U.S. Navy history, identified 25 changes (i.e., innovations) in Navy deployment strategy, and briefly described each of the resulting deployment strategy eras. Here we provide an overview of significant Navy organizational, technological and other innovations that took place in each deployment strategy era. Then we draw some conclusions on the relationship between deployment strategy and innovation.

Surge deployments and forward basing: 1775-1785

This era was characterized by enormous organizational innovation, as the Thirteen Colonies struggled to create and sustain their various new naval forces.

Technologically, during this period the American naval forces looked pretty much like their contemporaries, and like European naval forces had looked for decades: wind-driven wooden ships mounting smoothbore cannon.

There were, however, at least two outstanding American maritime technical innovations in the war: Civilian David Bushnell's submersible "turtle" and floating explosive "kegs." These underwater weapons were deployed as homeland defense weapons to deny access to the Royal Navy, in the first use of such weapons in warfare.[555] These innovations were neither successful nor sustained, however.

No deployments (and no navy): 1785-98

The new nation responded to its environment through the innovative creation of a lighthouse service, a revenue marine, and—ultimately—naval forces.

The rapid growth of the merchant marine maintained a strong maritime industrial base in the new nation. Thus when naval forces were considered in the 1790s, skilled naval architects and builders were on hand to create innovative designs, especially for frigates. The frigates built in the 1790s for what was to be the U.S. Navy were of an innovative design that would prove its worth in battle and that would be envied, studied and emulated by the British and other Europeans.[556]

Surge deployments for wars: 1798-1815

The most innovative naval event of the era was the founding of the Navy itself, in 1798. A Navy Department and naval organization had to be created almost from scratch, building on the foundations laid within the War Department in the preceding decade. Also, innovative organizational and operational relationships with the Revenue Marine had to be established.

The end of this period saw the American first use of a steamship in war, in 1815, and the laying down of the first steam-powered warship that same year.[557]

Almost as innovative for the U.S. Navy, although old hat to the navies of Europe, was the 1815 commissioning of its first ship of the line, *Independence*.[558]

The war also saw a few imaginative American attempts at underwater (anti-access) warfare, and at mine countermeasures (ant-anti-access warfare).[559]

Yet another innovation was the seizure, construction and defense during the War of 1812 of the Navy's first wartime temporary forward advanced base, in the Marquesas Islands in the South Pacific.[560]

Deployments on forward stations: 1815-1841

As the War of 1812 ended, the President and Congress created a Board of Commissioners composed of three post-captains, to advise and assist the Secretary of the Navy. After some initial disputes, however, all decisions on ship deployments continued to be made by the Secretary. The establishment of the Board of Commissioners was the next step in a long line of U.S. Navy organizational innovations.

The forward stations themselves were also an innovation for America, although they mimicked Royal Navy practice. So did the innovative creation of a Depot of Charts and Instruments in 1830.[561]

Inventors like Robert Fulton continued to design and build prototype steam warships, but the Navy was slow to accept them and Congress even slower to fund them.[562] With a principal requirement for economical and far-ranging operations against militarily inferior opponents, traditional sailing ship designs were preferred over revolutionary new concepts.

American warships of the period were normally built somewhat larger and more heavily armed than their Royal Navy counterparts, to enable American victories should war break out yet again, and to earn British respect and cooperation when it did not.

Forward stations and a new home squadron: 1841-1860

The 1840s and 1850s were an era that saw administrative and technical innovations reflecting the increasingly professional nature of the navy of a country that was now well on its way to becoming an economic giant.[563]

In 1842 Congress disbanded the Board of Commissioners and set up a new system of bureaus to manage the technical side of the Navy (operations remained under the purview of the civilian Secretary).[564] This bureau system would endure, albeit with some divisions and consolidations, until the 1960s.[565] Also in 1842, an Engineering Corps was created.[566] In 1845, a United States Naval Academy was finally established at Annapolis, Maryland to educate and train more formally America's naval officers, especially in engineering.[567]

During this period, the Navy experimented with steam propulsion, screw propellers, iron ships, and the powerful Dahlgren smooth-bore shell gun.[568] USS *Princeton*, the world's second screw warship, was launched in 1843.[569] That same year, the Navy commissioned its first iron-hulled warship—the Great Lakes paddle steamer *Michigan*.[570] During the Mexican War, the Army and Navy hired civilian colliers to coal their steamships forward in Mexico, which was nine hundred miles from the nearest American base at Pensacola. Thirty steamers were added to what continued to be essentially a blue-water forward Navy between 1854 and 1859.[571] Experiments in floating batteries and submersible weapons for homeland defense continued.[572]

In 1844 the Navy opened its first permanent scientific institution, the U.S. Naval Observatory; in 1849 it opened its second—the Nautical Almanac Office.[573] Throughout this period, there were vast improvements in nautical charts and sailing directions.[574]

Also, by the 1850s, two innovations in conflict resolution within the naval service had been instituted: the abolition of flogging and the demise of dueling.[575]

One innovation that the United States refused to accept during this period, however, was the abolition of privateering.[576]

Finally, during this period Navy officers had a new rank to aspire to: In 1857, the Congress created the temporary rank of Flag Officer.[577]

Forward deployments for war: 1861-1865

Administrative and technical innovations abounded during the Civil War on the Union side. Secretary of the Navy Welles supplemented his office by bringing on board the first Navy Assistant Secretary—Gustavus Vasa Fox—and by convening for a few months in 1861 a temporary joint and inter-agency advisory board of experts[578]. Congress created the

first Navy admirals, finally aligning the Navy's rank structure somewhat with the Army's.[579]

One non-naval innovation in particular—the 1861 completion of the first trans-continental telegraph line—was a harbinger for the future, regarding naval command and control: Communications between the Navy Department and the Pacific Squadron were now considerably quicker.

The widespread prewar introduction of the shell-gun (and the capture of a considerable store of them by the Confederates early in the war) sounded the death knell for wooden combat ships. The widely reported battle in Hampton Roads in 1862 between CSS *Virginia* and USS *Monitor*—both wooden ironclads—gave added impetus to the movement to build iron warships and cover wooden ones with iron.[580] By war's end the U.S. Navy's fleet included almost 60 ironclads.[581] *Monitor*'s innovative gun turret was likewise subsequently widely copied.

The shallow and narrow waters of the Southern littoral and river system, and the exigencies of station-keeping off blockaded ports, militated against deep draft and sails and gave impetus to shallow draft and steam.[582] Imaginative mine countermeasures were invented to combat the Confederate torpedo (mine) anti-access threat.[583] A notable innovation in sea basing was the designation in 1862 of the captured sidewheel steamer *Red Rover* as the Navy's first hospital ship. The first use of balloons in naval warfare occurred as well.[584] Finally, new tactics were devised—especially for taking on forts and ironclads.[585]

Not all possible innovations were explored. No joint command or planning institutions were created. The U.S. Navy—heavily influenced by Dahlgren—clung to smoothbore cannon and failed to switch to rifled guns. And while ironclad ships became common, iron warship hulls did not, despite their introduction into European fleets of the period.

Home and forward deployments for war: 1861-1865

On the other side, starved for resources, the Confederate Navy and other southern maritime forces tried to live by their wits. Innovation was widespread, especially in the field of underwater warfare for homeland defense—then called torpedo warfare.[586]

Both the Confederate Army and Navy created offices and laboratories to develop electrically fired mines. Significant underwater mine efforts were carried out as part of every major Confederate port and river defense effort, and 39 Union vessels were damaged or destroyed by mines.[587] Innovative submersibles were also built and deployed with spar torpedoes, to damage or sink Union warships and break the Union blockade.[588] The Confederacy can even be credited with deploying one of the world's first aviation vessels —the balloon carrier *Teaser*.[589]

Confederate Secretary of the Navy Stephen R. Mallory also pushed hard for the outfitting of innovative new ironclad warships—both new construction and modernization of existing unarmored vessels. The conversion of USS *Merrimack* to CSS *Virginia* in Norfolk in 1862 was only the most famous example. Throughout the war, innovative Confederate ironclads helped to delay Union seizures of essential Southern ports.[590] The Confederacy was also far more open to the introduction of new or rebuilt rifled naval guns than was its Union opponent.

Back to home surge and forward stations: 1865-1889

Important technical innovation was achieved during this period as well, despite a lack of resources from a Congress and an administration preoccupied with other matters.[591]

A Torpedo Station was opened at Newport in 1869 to experiment with and develop mines and torpedoes, as well as tactics for using and combating them.[592] The first operational torpedoes entered the fleet in 1889.[593] Also, the first electric lights, including searchlights, were installed on U.S. warships during the early 1880s.[594] A Naval Proving Grounds was set up at Annapolis in 1872, to test naval ordnance.[595]

The most important technical advance of the period as it related to the Navy was a non-naval invention: the trans-oceanic telegraph cable. The first successful cable on the ocean floor between North America and Europe was laid in 1866, and was quickly followed by others. Inter-continental cable communications meant that, from now on, orders from the Secretary of the Navy no longer took weeks on dispatch boats to reach captains on distant stations. Big steps forward had now been taken in centralized command and control, speed of decision execution, and civilian control of operations.[596]

Perhaps even more important than these technical changes was a series of innovations in the institutions of the naval profession in the United States. Tactical lessons from the Civil war were codified, published and exercised.[597] The Navy got its first full admiral in 1866.[598] The U.S. Naval Institute was founded in 1873 and the first edition of its *Proceedings* was published in 1875.[599] The organization and its journal rapidly became an important open forum for debating ideas on naval strategy, including deployment strategy.[600] In 1879, U.S. Navy postgraduate officer technical education began.[601] In 1882 the Office of Naval Intelligence was created, to collect information about foreign navies and other data.[602] In 1883, the first advanced enlisted training classes ashore were conducted.[603] In 1884 the Naval War College was founded, to rapidly become a central institution not only in officer education but also in war planning and gaming.[604]

In 1884, 1887, and 1888, Admiral Stephen B. Luce conducted the first squadron joint tactical experiments at sea off shore, setting a precedent of experimental exercises—often joint—that the Navy would follow for more than half a century.[605] In 1888, the American Society of Naval Engineers was formed.[606] In that same year, Massachusetts became the

first state to organize a Naval Militia.[607] Meanwhile, navalists like Theodore Roosevelt and Alfred Thayer Mahan wrote provocative works reflecting on the uses of naval power and recommending further innovations, including new deployment strategies.[608]

Forward stations and home concentrations: 1889-1905

For the U.S. Navy, this period saw an explosion of innovation: Procurement of the first coal-fired steel battleships, torpedo boats, destroyers, submarines and radio communications;[609] the introduction of triple-expansion engines;[610] the disappearance of wooden hulls and sails; the creation of a General Board of senior officers to advise the Secretary of the Navy; the creation of naval districts for homeland defense;[611] great expansion of the naval militias and the temporary creation of an Auxiliary Naval Force;[612] a drastic overhaul of its personnel policies;[613] the development of smokeless gunpowder;[614] a revolution in naval gunnery fire control;[615] the world's largest floating dry dock;[616] the creation of numerous institutions to foster technical innovation;[617] a new interest in forward advanced land and sea bases;[618] the first systematic peacetime war planning; the first Navy sealift organization;[619] the founding of a civilian lobbying organization to advocate a strong navy;[620] and other innovations.[621]

The Spanish-American War saw the beginnings of naval command and control warfare, when U.S. Navy boat parties cut underwater telegraph cables linking Cuba and the Philippines with Madrid.[622] What the war did not see, however, was American (or Spanish) privateering: In yet another innovation of sorts, private commerce raiding as an element of naval strategy and operations was now finally dead.[623]

Surge deployments for diplomacy: 1905-1914

Great innovative strides were made in this period in fleet command and control, naval gunnery, fire control, the use of submarines and, later, of airplanes.[624] The Navy also resumed experimenting with mine warfare.[625] In 1909, the fleet began to rapidly switch its fuel from coal to oil—and to experiment with underway refueling.[626] New turbine engines, small-tube water-tube boilers, and super-heaters vastly improved ship engineering efficiency.[627]

These technological innovations were paced by innovations in Navy officer post-graduate education.[628] Besides the major change in fleet organization, at least one other innovative organizational realignment occurred during this period: In 1909 the Secretary of the Navy created the position of Aid for Operations.[629] Meanwhile, in 1908, Congress established the Navy Nurse Corps and, in 1914, the Secretary of the Navy banned alcoholic beverages throughout the service.[630]

One surge fleet and some forward presence: 1914-1917

The fleet waiting for the Germans on the eve of American entry into World War I continued to be heavy in battle-ships and in the doctrine for their planned employment. Innovation continued in fleet command and control, naval gunnery, fire control, and the use of submarines, airplanes and blimps.[631] The Navy also continued experimenting with mine warfare.[632]

The year 1917 saw the commissioning of *Henderson*, the first purpose-built Marine sealift ship, but she was quickly pressed into service as a troop transport to Europe. That same year, the Navy commissioned *Bridge*, its first modern stores ship.[633]

Important innovative organizational realignments accompanied these changes: In 1915, Congress created the Office of Chief of Naval Operations, to operate the fleet and plan for war, under the direction of the Secretary.[634]It also elevated the ranks of the fleet commanders and created a Naval Reserve Force.[635] In 1915, the Secretary of the Navy created an Office of Inventions, as well as a Naval Consulting Board of civilian scientists, to spur scientific innovation in the Navy.[636] Also, in 1917, on the eve of American entry into the war, the Navy took in its first uniformed women—enlisted female clerical personnel popularly referred to as the "yeomanettes."[637]

Dispersing for war: forward and at home: 1917-1919

The innovation that had marked most previous eras of U.S. naval history continued to be in evidence during the Navy's participation in World War I.[638] The requirements of anti-submarine warfare drove much of this innovation, as would be expected. New types of detection gear were invented: Radio direction finders and hydrophones—early SONAR.[639] New types of weapons were designed as well, including depth charges and mines.[640]

In 1917 came the first underway oil refueling under wartime conditions and in heavy seas.[641]

In 1918 the U.S. and Royal Navies deployed minelayers to sow a gigantic belt of minefields in the North Sea—the North Sea Mine Barrage—as well as lesser belts in the Mediterranean.[642]

Two surge fleets and forward presence: 1919-1922

The major innovative changes during these years were in naval aviation. The Navy had finished the war with over 2000 aircraft, including seaplanes, flying boats, landplanes and

airships.[643] The Army Air Service had likewise finished the war flush with aircraft, but also with ideas, including the view—most prominently put forth by Brigadier General Billy Mitchell—that the days of the battle fleets were over, because aircraft could now sink warships at sea. In a series of well-publicized experiments in 1920 and 1922, Army (and Navy) aircraft succeeded in sinking stationary, unarmed warships, although it was unclear—especially to the Navy—that they would have had anywhere near this success against moving targets that could fire back.[644]

Despite a revival of the Joint Army and Navy Board in 1919, the Army Air Service attacks on the Navy acted as a brake on joint cooperation.[645] They also focused the Navy away from maritime landplanes—so successful during World War I—and toward experimentation with a wide variety of sea-going naval aviation combinations: Kite balloons on balloon carriers; blimps and dirigibles with a dirigible tender; sea-planes with seaplane tenders; and—of course—carrier aviation.[646] From 1919 to 1922 the Navy converted a collier to become its first, experimental, carrier—*Langley*.[647] During this same period, the Navy developed observation aircraft and catapults for its cruisers and battleships.[648]

This short period also saw the construction of the Naval Research Laboratory (NRL), to foster further scientific innovation in the Navy.[649]

One surge fleet again and forward presence: 1922-1937

During this period, the Treaty-limited battleship fleet was modernized and its doctrine and tactics refined.[650] While they viewed the battle line as the probable centerpiece of their operational capabilities, Navy planners did not neglect the development and integration of naval aviation (especially carriers), submarines, base seizure, and mobile at-sea logistics into their thinking, exercises, and experimentation, along with signals intelligence exploitation.[651] The innovative Commander Chester Nimitz, so instrumental earlier in developing refueling at sea, successfully pushed for adoption of circular formations for fleet cruising.[652] Meanwhile, planned Navy submarine employment strategy evolved from surveillance and battle line support to forward independent operations.[653]

Naval aviation, in particular, made great advances in this period.[654] A Bureau of Aeronautics (BuAer) was created in 1921 to foster and protect for innovation in naval aviation programs.[655] In 1929, carriers were exercised for the first time as strike elements independent of the battle line.[656] While the last U.S. Navy dirigible crashed in 1935, and the interwar Navy blimp force was tiny, four U.S. Navy aircraft carriers were commissioned by 1934.[657] For anti-ship air warfare, the Navy experimented with torpedo bombing, dive-bombing and high-altitude bombing using the innovative Norden bombsight.[658] New patrol seaplane scouting tactics were also developed.[659]

At the same time, the Marine Corps was developing a new and innovative body of doctrine on the conduct of amphibious assaults.[660] It was honed in a series of exercises at

Guantanamo Bay, Panama, Culebra, Oahu and Quantico that began in 1923 and 1924 but became more extensive once Marine "Banana War" operations ended in the mid-1930s.[661] In 1933, a Fleet Marine Force of two brigades was established as a Navy type command for amphibious exercises and operations with the Fleet, to be integrated with the Fleet as a complete combat force.[662]

Much of what the Navy thinkers and experimenters of that period thought about and tinkered with actually came to pass. Of course, there were things they didn't think about much at all that would also come to pass: Anti-submarine warfare against Germany in the North Atlantic and elsewhere; amphibious landings of U.S. Army corps and divisions in Africa, Italy and France; elaborate joint and combined theaters of war and command structures; and Japanese kamikaze attacks.[663] Experimentation was begun on sonar and radar direction finding, however, but little regarding convoy dispositions or submarine search patterns.[664]

One surge fleet and one new home fleet: 1937-1941

The pace of innovation in the fleet during this prewar period quickened. Developments in naval aviation led the way. New innovative bombers and fighter aircraft were deployed on the carriers. With the arrival in the fleet of the *Catalina* seaplane, the Navy now deployed hundreds of powerful new long-range patrol bombers, supported by a new tender fleet.[665] Not only would seaplanes perform reconnaissance tasks, but now also long-range strikes against ships and shore targets.[666] Blimp programs continued: In 1937, the Army Air Corps turned over its own blimp force to the Navy.[667]

Innovative new landing craft like the Higgins Boat and the Roebling Alligator were being purchased and upgraded to enable effective execution of the new amphibious assault doctrine.[668] Underway refueling of carriers and battleships was introduced for the first time.[669] Radar went to sea experimentally for the first time in 1939.[670]

Development was also underway on acoustic torpedoes, variable time (VT) radio proximity fuses for anti-aircraft gun shells, and High-Frequency Direction Finding (HF/DF) systems to find submarines was underway.[671] Aided by the British, new mines were begun.[672] New long-range submarines were designed and built.[673] And the Naval Research Laboratory even began researching nuclear propulsion for submarines.[674]

Surging forward and defending near home: 1941-1943

In addition to the innovative—indeed, transformational—new joint command structures that had been instituted, the early years of the war saw a host of major naval organizational and technological innovations.[675]

For example: The first Combat Information Centers (CICs) were installed in Navy carriers in 1941, using newly deployed radar to control Navy fighter aircraft.[676] Escort carriers were deployed to protect Atlantic convoys.[677] A long-range, ahead-thrown rocket-propelled anti-submarine weapon for surface ships—"Hedgehog"—was developed in 1942, using British prototypes.[678] Similar new rockets for shore bombardment were also rushed into production.[679] Experimentation began with sonobuoys.[680] Code breaking and the exploitation of signals intelligence expanded considerably.[681]

More new amphibious ship and craft types were invented.[682] In an important and innovative organizational realignment, these Navy amphibious ships and craft were finally separated from the auxiliary forces and established in new combat type commands of their own.[683] For construction and defense of advanced bases in combat areas, the first Naval Construction Battalions ("Seabees") were deployed, in early 1942.[684] The first women line officers were commissioned in 1942.[685] The first Underwater Demolition Teams (UDTs) were organized in 1943.[686]

Surging for global and trans-oceanic war: 1943-1945

Innovation proceeded apace as the war continued. The new ship types developed in the early part of the war and deployed by 1943 made possible innovative new operational formations—fast carrier, amphibious assault, close air support, and anti-submarine hunter-killer task forces.[687] Ad hoc innovative tactics were instituted in the Pacific on the spot to counter the Japanese kamikaze air threat in 1944 and 1945, and a new organization—the Composite Task force, U.S. Atlantic Fleet—was created to research and develop innovative tactics and equipment in more depth.[688]

At the very end of the war, the first naval helicopters deployed (under Coast Guard aegis) and a rudimentary air-to-surface guided missile—the Bat—was deployed and used by the patrol bomber force in the Pacific.[689]

Very importantly—starting in February 1945 off Iwo Jima—U.S. Navy ships in the Western Pacific rearmed and resupplied as well as refueled while underway.[690] Naval sea-based logistics, like so much else during the war, had been transformed, and along with it, the use of naval power itself: Seizing and holding advanced bases were no longer vital for forward U.S. Navy operations.

Two surge fleets and some forward presence: 1945-1947

The pace of innovation, high during the war, didn't slacken much in this period, despite the drastic cuts in funds, force levels, and personnel.[691]

A vast joint experiment in 1946—probably the last of the type that had originated with Rear Admiral Luce in the 1880s—tested nuclear weapons effects and showed that navies could survive atomic attacks.[692] In 1946, the Office of Naval Research (ONR) was established.[693] Research and development on the delivery by carrier aircraft of nuclear ordnance quickened, as did work on jet propelled aircraft, missiles and new submarine technologies—spurred by the capture of revolutionary new German snorkel and propulsion systems and the knowledge that the Soviets had made similar captures.[694]

Driven by memories of the kamikazes, new carrier- and shore-based airborne early warning aircraft, and radar picket submarines, were tested, for fleet air defense.[695]

Creating combat credible forward presence: 1947-1950

This was a particularly fertile period for new concepts and new institutions. In addition to the transformations in naval deployment strategy and national security organization, a host of other conceptual and organizational innovations were introduced.

For example, the sealift and coastal defense organizations of the services were consolidated and rationalized, transferring Army mine planting and sealift to the Navy.[696] In 1949, a new Military Sea Transport Service (MSTS) was created under control of the Secretary of the Navy to deploy sealift ships for all the services.[697] Likewise, a new Military Air Transport Service was created under the U.S. Air Force to consolidate all inter-theater service airlift deployments. The Naval Air Transportation Service (NATS) transferred many of its planes and personnel to MATS in 1949, and went out of existence.[698] For the first time, powerful peacetime military airlift and sealift forces would be retained and deployed in peacetime, lessening military and naval dependence on the health of America's merchant marine.[699]

Technical innovation paced the numerous organizational innovations of the period. The Navy and Marine Corps experimented with using helicopters to move Marines ashore.[700] Work continued on the Navy nuclear weapons program.[701] Nuclear power plants for submarines began construction.[702] Jet aircraft became operational.[703] The Bureaus continued to experiment with guided missiles.[704] Helicopters entered the fleet in numbers, as did improved radar picket submarines.[705] In 1949, Submarine Development Squadron 12 was created to foster submarine warfare experimentation and transformation, especially regarding using attack submarines to kill other submarines.

At the same time, the Navy dropped previous innovations that were no longer useful. E.g.: in 1949, the last observation aircraft were taken off the Navy's battleships and cruisers.[706]

Two forward presence hubs and two forward wars: 1950-1972

This was another enormously innovative period in the U.S. Navy.[707] In addition to the systems mentioned earlier that were continuing their development, the Navy developed and deployed numerous varieties of innovative sea-based helicopters, families of missiles, a revolutionary shipboard fleet air defense fire control system (NTDS), nuclear reactors for submarines, surface combatants, and carriers, new amphibious ship designs, a revolutionary submarine hull design, another leap in replenishment technology, and the use of communications and navigation satellites.[708]

The Navy innovated in part by borrowing extensively from abroad; e.g., submarine design concepts and the multi-purpose replenishment ship from the Germans; and the angled carrier deck, steam catapult, mirror carrier landing system, and much more from the British.[709]

Also, in 1962 the first U.S. Navy counter-insurgency SEAL Teams were organized and deployed.[710] During the 1960s, innovative new tactics and small craft were designed for riverine warfare in Vietnam.[711] And marine mammals were trained to assist for undersea operations.[712]

The period closed with the conclusion of an innovative agreement with the Soviets to curtail dangerous incidents at sea between the two navies.[713]

Two forward hubs: one now forward-based: 1972-1979

The fall-off in quantity of systems during this period was accompanied by an increase in quality.

During the 1970s the Navy introduced into the fleet a new generation of innovative ships, aircraft and weapons: Nimitz-class carriers, Los Angeles-class attack submarines, Tarawa-class amphibious assault ships, Spruance-class destroyers, Perry-class frigates, F-14 fighter aircraft with Phoenix missiles, S-3 sea-based anti-submarine aircraft and Harpoon anti-ship missiles. [714]

Sea-launched cruise missiles (SLCMs)—the future Tomahawk—were also developed during this decade, as was the Aegis anti-air warfare system and the Landing Craft, Air Cushion (LCAC).[715] The many elements of global anti-submarine warfare were woven together in the Ocean Surveillance Information System (OSIS).[716] Over all of this stretched the increasing use of satellites in space by naval forces, for navigation, communications, meteorology, and intelligence.

Many of these new designs represented evolutionary rather than revolutionary designs. The changes in operational concepts and tactics they triggered were, however, highly

innovative. The most important innovations were probably the institution of the Carrier Battle Group (CVBG) and the Composite Warfare Commander (CWC) concepts in the mid- and late 1970s.[717]

One further innovation bears recording: In 1978, the Navy began to assign women to its ships.[718]

Add a third forward hub and surge more: 1979-1990

During this period the attention of the Chief of Naval Operations was focused by law on organizing, training and equipping the Navy. This involved continued innovation.[719]

Innovations that entered the fleet during this period included the Tomahawk land-attack missile, the Aegis anti-air warfare system on new Ticonderoga-class cruisers, the vertical launch system for missiles, and under-ice capabilities on submarines. New ship classes that deployed included reactivated Iowa-class battleships, Ohio-class strategic submarine, a variety of sealift and prepositioning ships, ocean surveillance TAGOS ships, and two classes of mine warfare ships.

F/A-18 aircraft entered the fleet in 1981, followed by LCAC air-cushion landing craft and SH-60 LAMPS III helicopters in 1983. New tactics, techniques and procedures had to be developed for all of them, and work continued on developing same for earlier systems, often assisted by the Center for Naval Analyses, especially for the F-14 Tomcat aircraft - Phoenix missile system.[720]

An innovation in institutions for planned Navy employment strategy was the establishment of the CNO Strategic Studies Group (SSG) in 1981.[721]

Newer innovations were being developed as well: the V-22 tilt-rotor aircraft, the aborted A-12 stealth aircraft, the F/A-18E/F aircraft, the Arleigh Burke-class destroyer and the Seawolf-class submarine.

Combat-credible forward presence in 3 hubs: 1990-2001

Given the joint context of the operations of the period, it is not surprising that among its most important innovations was an exponential improvement in joint interoperability.[722] Other, related, innovations during this period included the increased digital netting of tactical communications and data links among larger numbers of Navy ships and aircraft.

Despite the cuts in ship numbers during this decade, individual ship capabilities in certain areas, especially strike and anti-air warfare, increased markedly. President George H.W. Bush directed that all theater nuclear weapons be removed from the Navy's warships in 1991, but Navy conventional ordnance became more and more precise as the fleet

introduced more laser-guided and other precision munitions, and upgraded the Tomahawk missile system.[723]

F-14 Navy fighters were refitted with strike capabilities, and P-3 Orion patrol planes became capable of conducting Intelligence, Surveillance, and Reconnaissance (ISR) operations over land as well as over water. The ubiquity of personal computers in the fleet drove a sharp increase in e-mail—secure and open—as a principal means of planning and operational communications. New video-teleconferencing technology changed Navy command and control practices.[724]

The incessant operations of the period provided at-sea laboratories for the constant development, testing and refinement of systems and tactics. The Navy took seriously the need to innovate and created some new institutions to do just that. In 1993 a Naval Doctrine Command (NAVDOCCOM) was created.[725] This innovation never took, however, and the command was disestablished five years later, its components to be subsumed under a new Naval Warfare Development Command (NWDC). This command took over oversight of a series of innovative Fleet Battle Experiments (FBE), the first of which had been conducted in the Third Fleet in 1997.[726] In 1995, the CNO charged the CNO Strategic Studies Group with the mission of developing innovations for the Navy to explore further.[727]

Citing changed world conditions and Navy missions, some Navy commanders during the decade experimented with innovative new types of task forces and other force packages.[728] None of these initiatives had a lasting change, however, on the three basic structures of Cold War combat-credible forward-deployed forces: the Carrier Battle Groups (CVBG), the Amphibious Ready Group (ARG), and the independent attack submarine.[729]

Immediate deployment response to 9/11/01 attacks

As noted earlier, elements of the deployment strategy followed by U.S. naval forces in responding were highly innovative.[730] Carriers and surface combatants put to sea within hours of the attacks and deployed off New York, the mid-Atlantic coast, West Coast ports, Hawaii and Guam, providing offshore air defense capabilities.[731] *Kitty Hawk*, the Seventh Fleet carrier forward-based in Japan, made plans to deploy to the Arabian Sea as an Afloat Forward Staging Base (AFSB), taking only a small part of her air wing but reserving space for 20 U.S. Special Operations Forces helicopters.[732]

The Marines deployed their small innovative Chemical Biological Incident Response Force (CBIRF) to the U.S. Capitol, and soon thereafter established a new 4th Marine Expeditionary Brigade (Anti-Terrorism), largely from existing units.

One last innovation was a deferral by the Navy to Coast Guard leadership regarding offshore homeland defense missions.

U.S. Navy deployment strategy in 2002

Innovative use of new and old systems marked the Navy's participation in Operation "Enduring Freedom." Particularly noteworthy was the use of P-3 Orion maritime patrol aircraft over land, for intelligence, surveillance and reconnaissance (ISR) support of special operations forces operating far inland. New sea-based unmanned aerial vehicles (UAVs) were also used extensively and successfully.

Operation "Enduring Freedom" validated the importance of the innovations in joint interoperability and precision strike warfare that had marked the previous decade.

The Navy leadership in 2002 was concerned that a continued deployment strategy of combat credible forward operations would strain their small fleet. Consequently, new personnel rotation systems and other schemes were experimented with, to lighten the load on the nation's sailors.[733] Other innovations being actively pursued were a CVN (X) with electric catapults; conversion of some SSBNs to SSGNs, a Littoral Combat ship, a Joint Strike Fighter, network-centric warfare systems, ballistic missile defense, and—that hardy perennial innovation—the V-22 Osprey tilt-rotor aircraft for the Marines.

Fleet Battle Experiments continued. The Navy was also asked by some to consider a revival of the state naval militia programs, and even a return to privateering.[734]

At the operational level, the Navy was planning to experiment with deploying new force packages—Expeditionary Strike Forces—comprising Carrier, Surface, Submarine and Expeditionary Strike Groups, as well as Missile Defense Groups.[735] This would be the first major change in U.S. Navy operational formations since the creation of the first Carrier Battle Groups and the Composite Warfare Commander (CWC) concept in the 1970s.

IV. Deployments, innovation, and exercises

Overview

The U.S. Navy has been, as we have seen, a very operational Navy.[736] This operational cast has meant that the Navy has often spent considerable percentages of its time at sea, in peace and war. Much of that at-sea time—for over a century—has been spent conducting exercises. U.S. Navy fleet exercises at sea have exhibited at least three purposes over time:

- **Training** in current doctrine, tactics, techniques and procedures for a specific and imminent deployment or operation
- **Experimentation** and testing of innovations and new capabilities, to prepare for war in the future
- **Demonstration** to participants and observers of capabilities and/or resolve

The relationship between U.S. Navy deployments, innovation, and exercises developed over time in at least four stages:

- A century of almost no at-sea exercises at all, despite numerous forward deployments, responses to crises, and wars. Innovations made it into the fleet anyway.
- Over a half-century of serious periodic squadron and fleet exercises, begun in the 1880s, often joint and with a heavy emphasis on training for future war. Experimentation and the testing of innovations were routinely added to the exercise agenda.
- Over a half-century of extensive fleet exercises, begun after World War II, designed principally to work up ships and aircraft for imminent forward deployments or to demonstrate and achieve alliance solidarity. Experimentation and the testing of innovations also occurred during exercises, as perceptions of enemy capabilities and intentions changed, and as new systems entered the inventory.
- A post-Cold War era in which the fleet exercise program appears once again to be becoming both standardized and joint, while at the same time providing trained and ready forces to the individual forward fleets and keeping the nation's naval alliances together. The fleet is taking on formal responsibilities for experimentation as well, mandated by higher authority.

The “Continental era” and at-sea exercises: 1770s-1880s

During the U.S. Navy's first century —what Samuel Huntington has characterized as America's "Continental Era"—its vessels seldom operated together and even less frequently exercised with each other beforehand.[737] The principal U.S. Navy force package of the period was the heavily armed, well-trained individual warship. These ships frequently deployed forward singly or in company—although seldom in formation—to carry out a multitude of missions. And they drilled as individual warships—with Marines as part of ships' companies—to maintain readiness for wartime tasks.[738]

Major—even transformational—redeployments of the squadrons making up the fleet occurred at the start of wars—and war scares. The Navy entered into its wars redeployed strategically but not, however, prepared tactically to operate in what were often transformed squadrons with revolutionary new missions. Newly formed squadrons "worked-up" while underway and en route to forward theaters of operations.

Joint U.S. Army-Navy operations, while frequent during wartime and usually successful, were pick-up affairs, with little prior planning ashore, let alone prior exercising at sea.

U.S. Navy institutional and technological innovation occurred with little regard to the lack of at-sea exercises. Innovations were usually pushed out from Washington via Navy and private-sector inventors and the Navy's technical bureaus. New weapon systems—i.e., guns —were experimented with at laboratories ashore and on individual ships before being spread throughout the fleet.

The “Oceanic era” and at-sea exercises: 1880s-1940s

During the first half of the Navy's second century—what Huntington termed America's "Oceanic Era" as regards its employment of its Navy—the Navy developed a sophisticated program of periodic squadron and fleet exercises. During the era's long periods of relative peace, these exercises focused on training the fleet for future wars. While the focus on training could lead to routine and artificial behaviors, it also provided scope for experimentation and innovation. Just before and during the era's infrequent but intense major wars, the exercise program refocused on meeting perceived immediate operational training needs.

The central Navy force package of the period was the battle line—the combat fighting formation of the Navy's battleships. Other force packages and innovations were exercised as they supported, complemented, or supplemented the battle line—providing scouting, screening, escort and logistics support.

Regarding at-sea exercises, the era began in 1873, with consolidated fleet exercises off Key West in the wake of the war scare with Spain over the *Virginius* affair. These exercises were for training, experimentation and demonstration, and they exposed glaring tactical and material weaknesses in the fleet. Then, in the 1880s, Rear Admiral Stephen Luce and the North Atlantic Squadron conducted a few at-sea maneuvers off the east coast that became the forerunners of a half-century of U.S. Navy fleet exercises.[739] These exercises usually exhibited seven primary characteristics:

- They took place off the coasts of the United States or its possessions
- They were often conducted in a close, even symbiotic, relationship with war-gaming and other activities at the Naval War College
- They were often conducted jointly with the Army, although sometimes with acrimony
- Except for brief periods just before the World Wars, the exercises were conducted solely with American forces. There were no combined exercises.
- They were at least in part threat-based and linked to war plans.
- They often provided scope for experimentation and innovation
- They were the preferred peacetime deployment choice of the Navy's uniformed leadership, over forward presence, cruising or diplomatic surges.

During the 1889-1917 period, squadron and fleet exercises were the domain of the North Atlantic Squadron—sometimes reinforced by other squadrons—and later its successors: the North Atlantic and then Atlantic Fleets. These exercises competed for fleet sea-time, however, with forward demonstration deployments (such as that of the Great White Fleet and the various fleet deployments to Europe), responses to crises, and wars. They were used not only to train for war, for experimentation and to test innovations, but also occasionally as demonstrations of America's new naval capacities—most famously in the multi-squadron Caribbean exercises of 1902-03, the first modern major American fleet exercise. While often experimenting with and testing new generic naval capabilities, at-sea exercises were linked to Navy and joint war plans and Navy war games—first against Spain and against the British Empire (War Plan Red), and later against Imperial Germany (War Plan Black).

During the 1920s and 30s, the main elements of the fleet moved to the Pacific and almost the entire warship inventory of the Navy became subsumed in one U.S. Fleet. The role of at-sea exercises as not only a schoolhouse but also as the fleet's laboratory for experimentation and testing of innovative ideas reached its apotheosis.[740] There were few distractions, other than diplomatic and financial constraints imposed by Washington. During these two decades, major U.S. Navy warships seldom ventured forward en masse or in response to crises (the only significant exception being the fleet's deployment to Australia and New Zealand in 1925, after one of the Fleet Problems).[741] Fleet exercises by what was now a consolidated United States Fleet were usually no longer tied to specific crises.

The seizure and defense of ports and bases—amphibious warfare and homeland defense—was often a feature of these exercises. They therefore usually involved significant Army participation. Army units played in many Navy and Navy-Marine exercises during this period. "Grand" (large) and "Minor" (small) Joint Army-Navy exercises were also conducted, especially during the 1920s and 30s. Army-Navy relations during these exercises—while styled "joint"—were actually "inter-service," with unified command relationships frequently either deliberately ignored or the source of acrimony. Toward the end of this period, when the Army began to conduct its own large-scale exercises, the Navy and Marines occasionally participated significantly as well, e.g.: in the "Louisiana" Maneuvers of 1941. The Marines during this period—especially the 1930s and early 1940s—were busily developing and testing new amphibious operational concepts, but as an integral part of the Navy and often with Army participation.[742] Occasionally, foreign observers were invited to the exercises, or parts of them.

For the same financial and diplomatic reasons that limited the fleet's operations, these exercises were conducted very close to home—never venturing beyond the Western Atlantic, the Caribbean, Panama or Hawaii.[743] By the 1920s, the linkages among the exercises, Naval War College war games and Joint Army-Navy Board war plans against Japan (War Plan Orange)—and, to a lesser extent, Britain (War Plan Red)—had become even more explicit and formalized. Nevertheless, despite the existence of a very concrete threat to be exercised against, there was sufficient uncertainty as to the timing of a future war—and a faith in long warning times—to allow room for fleet experimentation during the exercises, especially as regarded improving battle line gunnery and developing roles for naval aviation.

These large joint Army-Navy (and Army-Navy-Marine) training exercises-cum-experiments were conducted right up through the beginning of American participation in World War II, although they began increasingly to take on the role of training for specific upcoming forward deployments and operations against the Germans and the Japanese. Also, by 1940, small-scale U.S. Navy training exercises with the Royal Navy had started to occur.

During World War II, smaller-scale theater and tactical exercises were conducted more frequently, for training and as rehearsals for upcoming operations against Germany, Italy and Japan. Innovations—such as landing ships, mobile logistics forces, and airborne early warning aircraft—were integrated into these exercises as they entered the fleet, but they also were often integrated immediately into on-going operations.

Operation "Crossroads" in 1946 in the mid-Pacific was perhaps the last of the great joint exercises that had characterized the several decades leading up to World War II. Conducted after the war as a great innovative experiment to test the effects of nuclear weapons on warships, "Crossroads" was organized by "Joint Task Force One." Foreign observers attended, but participated only minimally.

The "Trans-oceanic era" and at-sea exercises: 1940s–1990s

By the late 1940s, the Navy and the nation had entered what Huntington termed the "Trans-oceanic" era, in which the U.S. Navy's centerpiece was the highly operational self-sustaining combat-credible permanently forward-deployed numbered fleet. By the early 1950s, the "home fleets"—the First and Second (and, after 1973, the Third in place of the First)—had inherited the mantle of principal at-sea fleet exercise coordinators for the U.S. Navy.[744] Their at-sea exercises, however, now evolved a new and different character:

- Exercises off the United States were no longer the centerpiece of peacetime U.S. Navy activity. That role had shifted to the operations of forward deployed forces.
- They were usually focused on working up task forces for immediate routine forward deployments.
- They took place in both the Atlantic and Pacific, and each fleet acquired certain operational characteristics based on its operating area's geography and alliance structures, and the types of ships and aircraft assigned to it.
- Experimentation and testing of innovative concepts still occurred.
- Units working up could anticipate being involved in a wide range of operations other than war and smaller-scale contingencies once they deployed forward. Nevertheless, work-up exercises were explicitly designed to combat the doctrine and systems of the Soviet Union, especially the Soviet Navy. As that doctrine and those systems were perceived to have changed, the exercise program was changed as well, and innovations and experiments introduced.
- Exercises were seldom conducted jointly with the Army any more, but were often combined, integrating the naval forces of numerous new allies. The forward-deployed fleets conducted exercises as well, to test their immediate readiness and to demonstrate alliance resolve.
- Exercises took place far forward as well as off the United States. Far from seeking to avoid even the appearance of aggressiveness, they often sought to demonstrate and assert American freedom of navigation prerogatives and offensive capabilities anywhere on the high seas, and even integrated anticipated Soviet military and naval reactions into exercise play.[745]

The change from a program of joint Army-Navy exercises to one of combined allied exercises is particularly striking. The homeland defense mission area declined drastically in importance.[746] The Marine Corps was now assigned principal responsibility for amphibious assaults and landings. Forward deployed and forward-based elements of the Navy and the Army were assigned to different theaters and sub-theaters. Accordingly, Navy joint experimental and operational relationships with the Army withered (although Navy staff relationships increased, given the post-war growth in the number and size of joint staffs).

Since the late 1940s, the force packages at the center of the U.S. Navy's combat-credible forward presence fleets were carrier and amphibious task groups (developed by the 1970s into carrier battle groups and amphibious ready groups/ Marine expeditionary units). Consequently, work-up exercises focused on the preparation of these force packages for deployment, necessitating close Navy-Marine Corps integration. (This integration proved far more effective than the old joint army-Navy relationships ever had.) The Marines over time approached these exercises increasingly as equals to rather than subordinates of the Navy.[747]

From the early 1950s onward, the Second Fleet in particular—as the core of the NATO Striking Force Atlantic—participated in a program of large-scale allied exercises in the northeastern Atlantic, primarily to demonstrate U.S. and allied resolve, foster interoperability, and improve allied naval competence. Later, the Third Fleet developed a major allied exercise program as well—RIMPAC. Whatever the importance and utility of these exercises for demonstration and training purposes—and for fostering innovation in allied navies—they did not often serve as venues for significant training, experimentation and innovation in the U.S. Navy.

The immediacy of the exercise program's training function was reinforced by the endless stream of wars, real-world crises and other situations that the forward fleets responded to throughout the Cold War. Nevertheless, the fleet usually fit innovation and experimentation into its work-ups. Perceptions of Soviet capabilities and intentions changed, and major new systems were constantly flowing into the fleet. Experimentation driven by these new perceptions and systems was a constant. The fleet learned to "do it all."

U.S. Navy at-sea experimentation and innovation took place as well under the aegis of the Navy's laboratories and a few small dedicated fleet elements; e.g., the Operational Test and Evaluation Force (OPTEVFOR), the Submarine and Surface Warfare Development Groups (SUBDEVGRU and SWDG), and the advanced air tactical training units ("Topgun" and "Strike U").

A fourth era of exercises: 1990s -

During the 1990s and continuing through the early 21st century, there were calls (and, later, requirements) to return to some features of the earlier model of at-sea exercising—a model that was certainly more joint and centralized but only arguably more experimental in nature. By 1997, the Navy had added Fleet Battle Experiments (FBEs) to the exercise program of the five numbered fleets—those working up at home as well as those operating forward—with the fleets taking turns in conducting one or two FBEs a year.[748]

Likewise, the unified Atlantic Command of the Cold War was transmogrified by 1999 into a new unified Joint Forces Command, and charged with conducting joint experimentation through exercises. The Second and Third Fleets now styled as "Joint Fleet Exercises (JTFXs)" the work-up exercises they ran to prepare Navy battle groups and other elements for forward deployments. And in 2001, a Fleet Forces Command was stood up, embracing both the Atlantic and Pacific Fleets, to effect greater standardization of fleet doctrine, tactics, techniques and procedures, especially in their exercise programs.

The Al-Qaeda terrorist attacks on the World Trade Center and the Pentagon in September 2001 triggered a revived interest in the homeland defense mission area. This started to be reflected in the fleet's exercise program as well. As homeland defense is inherently a joint —and, indeed, interagency—enterprise, this revival added yet another driver for increased jointness in Navy exercises.

These changes in the use and nature of fleet exercises harkened back somewhat to the period before World War II, with one important difference: Jointness, standardization and directed experimentation were *additive to, not substitutes for*, the legacy Cold War-era exercise concepts of readiness training work-ups, innovation to counter perceived foreign developments, and allied demonstrations. The U.S. Navy fleet of the early 21st century was still called upon to spend lots of time at sea; to provide and maintain significant, persistent and ready combat-credible forward deployed fleets; to support homeland defense operations; to keep together and strengthen the nation's worldwide system of maritime alliances; to adapt to the peculiar characteristics of each of the world's areas of operations; and to conduct significant joint experimentation and operations directed by high defense department civilian and military officials, and by the Congress.[749] Meanwhile, the laboratories and warfare development groups continued their own experimental exercise programs.

Moreover, while national security policy in the first post-Cold War decade explicitly targeted North Korea and Iraq, that of the beginning of the second post-Cold War decade appeared far more generic and "capabilities-based." Thus proposed joint exercise scenarios of the early 21st century appeared more hypothetical and lacking in focus than the earlier threat-based exercise programs aimed at building up fleet capabilities to defeat the Spaniards, British, Germans, Japanese and Soviets, and later the North Koreans and Iraqis.

The centrality of the CVBG and the ARG/MEU(SOC) as the primary fleet force packages continued through the 1990s, despite some innovative Atlantic Fleet and Sixth Fleet experimentation with Adaptive Joint Force Packages in their exercises and operations during the early part of the decade. By 2002, however, the Navy announced that it planned to deploy new types of force packages.[750] Presumably, "Sea Trial"—the Navy's new experimentation and innovation process—will use the exercise program to help evaluate these innovations.

Observations

Political as well as Navy decision-making has usually driven the exercise program in the past, and may well in the future. Whatever the desires of the U.S. Navy officer corps in the 19th century for squadron formations, signal manuals and tactical exercises, the political leadership of the country opted for distant stations and operations other than war that required coordinated actions at sea. During the first decades of the 20th century, the officer corps bristled at presidential edicts to deploy the fleet hither and yon in shows of force, preferring to keep it at home practicing formation steaming and gunnery.

In the interwar period the admirals got their wish -if not the fuel budgets they would have liked. In the postwar period, however, it was flag officers like Forrest Sherman and Arthur Radford who opted and pushed for combat-credible forward presence operations. These required, however, a robust exercise program for work-ups for the deployers, as well as to assimilate all the new technology and ideas that were pouring into the fleet. Thus, the Cold War Navy got used to "doing it all."

Conducting not only work-ups and demonstrations, but also experiments—at home and forward, jointly as well as with friends and allies, standardized yet capable of being tailored, and with new force packages—is a tall order.

It is not, however, necessarily out of the Navy's reach, given the Navy's experience during the Cold War and post-Cold War decades, and its considerable budget, force structure, experience and, especially, pool of human talent.

In any event, such a demanding ten-way stretch is well aligned with the Bush Administration's demanding declared defense policy and strategy. As Secretary of Defense Rumsfeld has asserted:

> Our country is being called upon to accomplish three difficult missions at once: first, to win the global war on terrorism; second, we have to prepare for the wars we may have to fight later in this decade,...[and] third, we have to be prepared for the wars in the future, between 2010 and beyond....Each of these missions is critical; none can be put off. We cannot delay transformation while we fight the war on terrorism.[751]

V. Deployment strategy and sea basing

Overview

The forward "sea basing" concepts being discussed by the Navy and Marine Corps in 2002 have roots that stretch far back in U.S. Navy history.[752] From its earliest days, operations from a surged or permanent sea base against the shore characterized forward U.S. Navy operations. It was further recognized that forward basing—first on land and then at sea—expedited naval forward deployments. Forward sea basing had utility in supporting the Army—and still later the Air Force and joint forces—forward as well.

The history presented earlier was replete with examples of forward sea basing—integral to the story of the evolution of the U.S. Navy's forward deployment strategy. Here we will draw those examples together to present a more coherent picture of the development of a concept that became—by 2002—one of the major elements of the U.S. Navy's operational vision and the *Naval Transformation Roadmap*.[753]

U.S. Navy forward sea basing has had four major components:

- Sea-based attacks against the shore
- Sea-based surveillance of the shore
- Sea-based logistics
- Sea-based command and control

The analysis below will address each in turn.

Attacking the shore

Historically, sea basing for attacks against the shore has had at least three elements: Amphibious operations, sea-based fires, and sea-based strike aviation.

Amphibious operations: landings and assaults

Landing troops from ships—the sea basing of ground forces—has long characterized naval operations, including U.S. Navy operations.[754] As noted earlier, the very first surge

deployment of the Continental Navy in 1775 was to land sailors and Marines in the Bahamas to seize weapons and munitions for the Continental Army. In the early 19th century, U.S. Navy warships landed Marines—if in reverse order—"from the halls of Montezuma to the shores of Tripoli." U.S. Navy warships on permanent forward station, acting as sea bases, landed sailors and Marines all over the globe during the 19th century. During the Seminole, Mexican, Civil, Spanish-American and Philippine Wars, they landed U.S. Army contingents as well, in both amphibious landings and amphibious assaults.

During the period between the World Wars, great strides were made in developing surge amphibious doctrine, especially by the Marine Corps. These doctrinal innovations were practiced in the years before U.S. entry into World War II, and further developed and implemented during that war, with Navy warships supporting the Army forward in the Atlantic, and supporting the Army and Marines forward in the Pacific. Major joint amphibious assaults (and evacuations) marked the first several months of the Korean War as well.

During World War II, whole new classes of specialized amphibious landing ships and craft were designed and built. After the war, these vessels were superseded by two more generations of purpose-built amphibious vessels, and the helicopter and vertical envelopment became part of forward amphibious warfare. Also after the war, the Marines emerged as the pre-eminent ground service regarding American amphibious assault and landing doctrine and operations. Most importantly, beginning in 1948, combat-ready Marines began to deploy forward routinely on board U.S. Navy Amphibious Ready Groups (ARGs) as important elements of the Navy's emerging combat-credible forward-deployed fleets. Unlike the Army troops and Marines who surged forward during World War II—but like the 19th century Navy's sailors and Marines—these forces formed a sustained naval forward presence at sea, rather than forces combat-loaded at a port or anchorage and destined for a specific planned assault area.

As important as sea basing has been to modern amphibious warfare, it has normally been accompanied by forward logistic build-ups ashore as well. Examples of pure sea basing of logistic support for amphibious assaults have been rare. Because build-ups ashore slow operations down and increase force vulnerability, however, the Marines have sought to maximize sea basing and minimize build-ups ashore. During the 1990s, the Marines developed innovative new concepts of Operational Maneuver From the Sea (OMFTS), aimed at reaching farther inland faster and in greater strength than previously, directly from the sea, avoiding slow and vulnerable build-ups of "iron mountains" ashore.[755] They also pushed for innovative new systems they believed would implement these concepts; e.g., the V-22 tilt-rotor Osprey aircraft.

Sea basing has often supported special operations raiders as well as conventional ground assault troops. In the wake of the Japanese attack on Pearl Harbor, Marine raiders forward deployed from U.S. Navy submarines to attack exposed forward Japanese island bases.

During the Tanker War of the 1980s in the Persian Gulf, U.S. special operations forces (SOF) assaulting Iranian facilities staged off specially-acquired barges.[756] During the "intervasion" of Haiti in 1994, Army and SOF units deployed by helicopter from Navy carriers. Much more recently, SOF, including Navy SEALs, operated from a carrier—*Kitty Hawk*—being used as an afloat forward staging base (AFSB), in support of operations in Afghanistan (Operation "Enduring Freedom").

Sea-based fires

Like amphibious operations, sea-based gunnery against the shore has been part of the operational inventory of the U.S. Navy since its inception, when it bombarded the fortresses of the Barbary States. Major innovative advances in gun and shell technology during the 19th and early 20th centuries greatly increased the range, accuracy and hitting power of naval guns, demonstrated by the devastation caused by the Navy's bombardment of Vera Cruz, Mexico in 1914. These advances were compounded in the mid-20th century by advances in aviation spotting and fire control, so that by World War II the naval gun was a fearsome weapon against shore fortifications, used both autonomously and in support of amphibious assaults.

Generally, however, naval fires against the shore competed for priority in the surface combatant fleet with anti-ship warfare. (An exception was the second of the battleship *New Jersey*'s three periods of commissioned service, when she was charged solely with providing naval fires off Vietnam in 1968-9). Naval fires against the shore have also been limited by shortages in specialized gun ammunition and fear of powerful opposition gun and air forces ashore.

Since World War II, guns for shore bombardment have been complemented and in many situations replaced by aircraft and innovative new sea-based shore bombardment missiles. Naval strike warfare against the shore increasingly included missiles as well as aircraft, giving sea-based fires enormously increased ranges. By 1960, submarine-launched Polaris ballistic missiles for nuclear shore bombardment had entered the nation's joint strategic nuclear deterrent arsenal. By the 1990s, the vertically-launched Tomahawk land attack cruise missile had become a mainstay of the Navy strike warfare arsenal, fired from surface combatants and submarines. Meanwhile, new innovative advanced naval surface combatant gun designs were being tested, especially for sea-based fires in support of amphibious operations. Plans had also been developed to convert four ballistic missile-firing submarines into cruise missile-firing submarines.

The 2002 *Naval Transformation Roadmap*'s "Sea Strike" concept calls for transformation of the Navy's time-sensitive strike capabilities, to include sea-based naval fires. Its "Sea Shield" concept called for transformation of the Navy's capabilities for sea-based air and missile defense of forward shore bases used by any service, as well as by the nation's allies.

Sea-based strike aviation

Early naval aviation attack efforts were largely aimed at targets at sea. During the period between the World Wars, the Navy developed a variety of sea-based strike aircraft optimized for strike at sea from carriers or forward deployed tenders: dive bombers, high altitude bombers, torpedo bombers and long range seaplane patrol bombers.

During World War II, the Navy developed forward naval aviation operations from aircraft carrier sea bases into a sophisticated, powerful and effective combat element, initially focused on sinking enemy warships. Early in the war, however, the Navy and the Army Air Forces conducted an extraordinary and daring joint raid on Japan, using normally land-based bomber aircraft launched from a carrier deployed far forward in the western Pacific, and recovered on the Asian mainland. As allied forces attrited the German and Japanese navies, the U.S. Navy fast carriers became increasingly focused on attacks against the shore. The Japanese shore-based kamikaze efforts in 1944 and 1945 added urgency to the need to attack enemy forces "at source", that is, at their bases ashore.

Following World War II, the focus of U.S. Navy sea-based attack aviation became strike against the shore, including nuclear strike, from permanently forward-deployed carriers. In the 1990s, great advances were made in improving the accuracy of forward sea-based strike aviation, and sea-based strike itself became increasingly wedded to forward land-based support, in the form of U.S. Air Force refueling, command and control, sensor, and airlift aircraft.

The 2002 *Naval Transformation Roadmap*'s "Sea Strike" concept calls for transformation of the Navy's time-sensitive strike capabilities, to include sea-based strike aviation.

Sea-based surveillance of the shore

Warships were long used as surveillance platforms to ascertain what was going on ashore, especially enemy troop and ship movements. Surveillance was key to the operations of the forward U.S. Navy blockading squadrons during the Barbary, Mexican, Civil and Spanish-American Wars. During the Civil War, sea-based surveillance was given an added dimension by the launching of observation balloons from river craft by both Union and Confederate forces.

The first operational use of fixed wing aircraft by the U.S. Navy was at Vera Cruz in 1914, when naval aircraft were launched from ships to observe Mexican forces. During the period between the World Wars the Navy developed a variety of sea-based scout, observation and patrol aircraft—fixed wing and lighter than air. It also developed a variety of platforms for launching them—a kite balloon tender, a dirigible and blimp

tender, aircraft carriers, seaplane tenders, and battleships and cruisers with catapults. Most of these efforts were aimed at enhancing surveillance at sea, not ashore. In any event, the kite balloon and dirigible experiments didn't pan out, and the patrol seaplane, blimp and battleship-launched aircraft outlived their usefulness by the middle of the Cold War. (Also, during World War II, the ground Army developed and implemented innovative techniques to launch and recover Army observation aircraft from forward Navy landing ship tanks (LSTs).)[757]

From the start of the Cold War, the Navy deployed surface ships and submarines to the periphery of the Soviet Union, to gather Soviet signals and communications intelligence from a forward sea base. During the 1960s, the Navy converted ten cargo ships for the specialized sea-based forward collection of signals intelligence ashore. (These included *Pueblo* and *Liberty.*)[758] During the 1980s, a former mobile logistics force repair ship (*Sphinx*) was forward deployed as a sea base to gather intelligence off Central America. During and since that time, other U.S. Navy warships and aircraft have conducted forward sea-based intelligence, surveillance and reconnaissance operations against shore targets.

The *Naval Transformation Roadmap*'s "Sea Strike" concept calls for transformation of the Navy's sea-based persistent intelligence, surveillance and reconnaissance capabilities.

Basing and logistics: Land basing and sea basing

It is difficult to provide a coherent discussion of forward sea-based logistics without also discussing forward naval logistics ashore. Accordingly, the discussion below has several elements, including fixed permanent forward bases; forward stations, station ships, tenders and repair ships; advanced bases; refueling and replenishment at sea and underway; and afloat prepositioning.

Fixed permanent forward bases

Lacking a string of colonial naval bases around the world as did many of the European navies, the U.S. Navy had to rely on forward allied bases—when available—and a few colonial base sites. During the War for Independence, Captains John Paul Jones, Gustavus Conyngham, and Lambert Wickes deployed their ships from foreign forward bases in France and Spain. During the Quasi-War with France, the nascent U.S. Navy used British bases in the Caribbean for repairs. During the Barbary Wars, Americans used foreign forward bases in Sicily and Venice. Following the Spanish-American War, the U.S. Navy built permanent forward bases of its own in Cuba, Hawaii, the Philippines and Panama - although none were developed fully, due to Congressional budget constraints.

During World War I, the U.S. Navy forces that had deployed to Europe worked out of permanent British, French and Italian naval bases. In the interwar period, fortification of most Pacific island bases was banned by Treaty, and funds were short for bases that were

allowed, like Panama and Hawaii. Just prior to American entry into World War II, the U.S. Navy acquired long-term access to a string of British advanced bases in the Atlantic. During that war, the U.S. Navy relied on forward allied bases in Australia, the United Kingdom, North Africa, Brazil and elsewhere. While many of these bases were abandoned after the war, some were permanently retained, especially to support Navy land-based forward-deployed maritime patrol aircraft.[759]

Following World War II, the U.S. Navy built large forward permanent base complexes on allied soil in Spain, Japan, and the Philippines, and smaller bases elsewhere. The forward bases in Japan and the Philippines were particularly important during the Korean and Vietnam Wars. By 1973 almost the entire Seventh Fleet was home-ported forward at bases in Japan. (A contemporaneous attempt to replicate this for the Sixth Fleet in the Mediterranean failed). During the Cold War and thereafter, use was made of base facilities on Guam, and a permanent forward base was built up starting in 1971 on the British island of Diego Garcia in the Indian Ocean. Facilities were also built forward to support the Navy's underwater surveillance system (SOSUS).[760] During the 1990s, the U.S. Navy closed some forward maritime patrol aircraft bases and SOSUS facilities, traded its bases in the Philippines for access to facilities in Singapore, and built up its small base at Bahrain.

At the same time, as has already been mentioned, the Navy became increasingly reliant on U.S. Air Force tanker, surveillance, command and control and airlift aircraft, often flown from fixed permanent forward bases. Air Force inter-theater airlift aircraft were complemented forward by Navy intra-theater shore-based airlift, also using forward shore bases. During World War II, the Navy had run its own shore-based airline, the Naval Air Transportation Service (NATS). During the Cold War, forward shore-based naval air transportation had become a function of Naval Reserve aviation squadrons.

Defense of these forward bases was normally the responsibility of the armed forces of the host government, and of the U.S. Army and Air Force. The Navy, however, had contributed patrol aircraft and Marine Defense Battalions to help defend bases in U.S. possessions before and during World War II. After the end of the Cold War, Navy Mobile Inshore Undersea Warfare (MIUW) units helped protect Navy forward bases overseas. Following the terrorist attacks on the World Trade Center and the Pentagon in September 2001, the Navy significantly increased its contribution to forward base defense, including air defense, especially at Diego Garcia.

Forward stations and station ships

In periods when fixed forward bases ashore were either unavailable, undesirable, or considered too costly, a variety of jury-rigged solutions to the forward basing problem were tried. During the Quasi-War with France in the Caribbean that started in 1798, the Secretary of the Navy set up depots in independent Haiti and British St. Kitts.[761] The Navy

forward stations of the 19th century were maintained using very austere shore support: A leased warehouse and an office perhaps, in some port city in the area covered by the station.

Sometimes a station ship or store ship was assigned—like *Scorpion* at Constantinople from 1908 to 1927—or later a tender. In 1941, a forward-deployed repair ship in Iceland conducted the first U.S. Navy battle damage repair of World War II.[762]

Even land-based naval aviation has benefited from forward sea-based station ships. From 1957 through 1969, the U.S. Navy routinely deployed Navy-crewed Advanced Aviation Base ships (AVBs) forward in the Mediterranean to support shore based maritime patrol aviation squadrons.[763] (Since 1986, a new generation of civilian-crewed AVBs has been created, to surge deploy from the United States to support Marine Corps forward land-based tactical aviation forces during contingencies.)

During the Cold War, stationary forward-deployed U.S. Navy tenders provided services to strategic nuclear submarines in ports in Scotland, Spain and Guam. Other tenders provided forward services for attack submarines, destroyers, patrol gunboats, and other U.S. Navy warships. During the 1990s, the Navy's repair ship and destroyer tender forces was eliminated, and the forward submarine tender force significantly cut back, as most repair responsibilities shifted back to bases in the United States.

Advanced bases

During wartime, it was often necessary to seize islands or coastal areas to use as temporary advanced naval bases to support forward fleet operations. Sometimes these seizures were peaceful—as occurred in the Marquesas during the War of 1812 and at Bora Bora in the South Pacific in 1942.[764] At other times—as during the Civil War campaigns on the North Carolina coast and the Pacific island campaigns of World War II—formidable enemy defenses had to be assaulted and taken, sometimes at great cost.

The Marine landing at Guantanamo Bay in Spanish Cuba in 1898 was a watershed event that started to focus the Marine Corps on seizing temporary advanced bases for a battle fleet that appeared to be becoming heavily dependent on such bases for coaling and battle damage repair. The difficulties attendant in such operations led to the development during the 20th century of a significant body of doctrine - developed largely but not exclusively by the U.S. Marine Corps—on the proper successful conduct of amphibious assaults and landings. Generations of purpose-built amphibious ships, craft, and aircraft were built and deployed by the U.S. Navy, starting in the early 1940s, to enable these operations.

The temporary advanced bases seized by naval forces in the Pacific were often of as much utility to the Army and the Air Force (and its predecessor organizations within the Army)

as to the Navy. The classic case was Iwo Jima, seized by the Marines with Navy support in 1945 and subsequently occupied by the U.S. Army, in order to provide an emergency recovery airfield for Army Air Forces bombers.

Once seized, these bases often needed to be secured and defended, a task divided among all the services, but carried out mostly by the Army.

Refueling at sea

The advent of steam propulsion plants in the 19th century necessitated the frequent coaling of ships—dirty, hot, difficult, slow job. A chief rationale for the occupation of bases around the world by European naval powers during the 19th and early 20th centuries had been their potential use as forward coaling stations, without which forward naval operations could not occur.

The experience of the U.S. Navy during the Spanish-American War and its Roosevelt-era cruises—especially that of the Great White Fleet—led to experiments with coaling at sea and, later, the substitution of oil fuel for coal. The normal practice, however, prior to World War I was for warships to refuel—whether with coal or oil—in port or at sea at anchorages.

Refueling underway

Some experiments were conducted in underway coaling in the early 20th century, but were abandoned as the fleet switched to oil fuel. Underway oil refueling began with the mid-Atlantic refueling of destroyers during World War I. It was developed during the interwar period to include the underway refueling of carriers and battleships (and by them of their escorts). Oiling under way was common practice in the U.S. Navy throughout World War II and subsequently. Generations of purpose-built fleet combat logistics force oilers and their rigs were designed for the task.

The introduction of nuclear power into the fleet for submarines, aircraft carriers, and—for a few decades—cruisers obviated the need for underway refueling for those warships, increasing their mobility, flexibility and combat efficiency. Underway refueling for conventionally-powered warships, however, remains a mainstay of U.S. Navy combat-credible forward presence and operations in the first decade of the 21st century.

Replenishing, rearming and repair at sea

Mobile logistics ships were present in the early Navy. The store ship *Relief* supported the Wilkes expedition in its round-the-world scientific operations. A second *Relief*—this time

a hospital ship—supported the Great White Fleet in its round-the-world deployment in 1907-09.[765]

The need for significant forward afloat logistic support for a fleet planning to fight in the western Pacific—especially floating dry docks—was well recognized by naval planners from the early part of the 20th century. The need became acute after 1922, when the Washington Treaties forbade further fortification of fixed forward bases in the Philippines, Guam, Wake and the Aleutians. Funds were tight, however, and little in the way of actual shipbuilding or conversion occurred to support the concept at sea.

Up to the middle of World War II, the U.S. Navy's fleets were principally supported from the shore—even in the Pacific—until new mobile logistics support ships were finally designed and built. By 1944, however, squadrons of Service Force Pacific floating dry docks, stores ships, tenders and repair ships for intermediate-level maintenance and repair were surge deployed to strategic anchorages across the Pacific as floating naval bases. These Mobile Support Groups supported the forward fleets, providing ammunition, spare parts, provisions and intermediate-level battle damage repair.[766]

The U.S. Army and Army Air Forces also were supported at times and in part from their own mobile afloat bases. Examples included the Army's use of storage barges in the Pacific, and the Army Air Forces' use of helicopter-equipped Liberty ships anchored in the harbor at Tinian, to store and distribute spare parts.[767]

Following the war, the vast fleet of auxiliaries that had been built and surge deployed forward as mobile afloat bases was dissipated. Some were recommissioned to support the war in Korea, to supplement the forward fixed base facilities at Sasebo and Yokosuka, Japan.[768] During the Vietnam War, the Navy recommissioned several mobile logistics force ships to act as forward afloat sea bases in the rivers and harbors of South Vietnam.[769]

Intermediate-level maintenance and repair, however, became increasingly a function of depots ashore, both forward and at home. It also became a function organic to many large combatants, including carriers and amphibious assault ships. By the 1990s, the World War II-era mobile logistics fleet—so useful in Korea and Vietnam as well—was only a memory. Moreover, the Navy de-commissioned the last of its repair ships and most of the tender force.[770] U.S. Navy sea-based mobile logistics forces - other than the underway replenishment force and the organic capabilities of combatant warships themselves—had all but disappeared.

Replenishing and rearming underway

Since their inception, carriers and other ships capable of landing or retrieving aircraft while underway could receive small amounts of critical supplies and personnel from shore or other ships using aircraft. This evolved into the Carrier Onboard Delivery (COD) system, using specially designed aircraft for these procedures. As necessary, supplies and personnel delivered to the carrier could then be transferred at sea to other ships. Likewise,

the reverse was true, and COD could be and was used to transport personnel and material ashore forward.

By 1945, wholesale rearming and replenishment (as well as refueling) of combatants from support ships while underway had occurred in the Pacific. Underway Replenishment Groups (URGs) now accompanied the fleet's striking forces at sea, extending their ability to conduct forward persistent operations. Underway replenishment would remain a mainstay of U.S. Navy forward operations ever since, finally freeing the operating forces from tethers to shore bases.

In the 1950s, innovative supplementary underway Vertical Replenishment (Vertrep) procedures, using shore-to-ship and ship-to-ship helicopters ship-to-ship, were introduced. This included Vertical Onboard delivery (VOD), to supplement COD. In the 1960s, single-product replenishment ships were supplemented or replaced by new multi-product Fast Combat Support Ships (AOEs)—an innovative concept borrowed from the German Navy of World War II. Of course, shore-based replenishment, when available, was often used—especially using aircraft from airheads on the beach—but it was no longer a *sine qua non* for naval combat-credible forward presence.[771]

Underway refueling and replenishment ships themselves are refueled and resupplied either directly from advanced or rear bases or at sea from shuttle ships.

Underway replenishment remained a vibrant concept in the U.S. Navy during the Cold War and beyond. Beginning in the 1970s, the Navy increasingly crewed the underway replenishment and shuttle ships of its Combat Logistics Force with civilian mariners instead of sailors. By 2002, there were 34 such civilian-crewed combat logistics ships assigned to the Military Sealift Command's Naval Fleet Auxiliary Force (NFAF).

In the 1990s and the beginning of the 21st century, each forward deployed carrier battle group included its own fast combat support ship (AOE) or replenishment oiler (AOR).

Afloat prepositioning

In the wake of the fall of the Shah of Iran in 1979, the United States realized that forward naval deployment and reliance on local allies for keeping order and providing support to American armed forces needed to be supplemented by the large-scale permanent forward stockpiling of military equipment at sea for immediate off-loading. The first civilian-crewed forward afloat prepositioning ships—the Near Term Prepositioning Force—were deployed forward to Diego Garcia in 1981.

The Afloat Prepositioning Force, from its inception, was designed to provide permanent at-sea forward stockpiling not only for the Marines and the Navy, but also for the Army,

the Air Force and the Defense Logistics Agency. It was utilized extensively during Operations "Desert Shield" and "Desert Storm," when prepositioning ships disgorged their cargoes at various Persian Gulf ports, to be married up with combat and support troops flown in from outside the theater.

By 2002, there were 41 ships in the Afloat Prepositioning Force, permanently deployed forward in three Maritime Prepositioning Squadrons and an Afloat Prepositioning Squadron.

The 2002 *Naval Transformation Roadmap*'s "Sea Basing" concept calls for transformation of the Navy's prepositioning force, and its netting with other naval and joint elements.

Command from the sea

Prior to World War II, U.S. Navy flagships were intended to run operations from the sea against the shore, as well as combat operations at sea. Flagships had to have size enough to accommodate admirals as well as their staffs; and speed enough to enable admirals to maneuver well within their fleets. Fast battleships and cruisers were therefore ideal sea-based command platforms for fleet and force commanders before and during World War II (although the Commanders in Chief of both the U.S. Fleet and the Pacific Fleet directed the war at and from the sea from headquarters ashore). Also during the war, the U.S. Navy borrowed an innovative concept from the British: A command ship specially configured to run assault operations against the shore—the amphibious command ship (AGC), converted from a merchant hull.[772]

During the Cold War, cruisers endured as U.S. Navy forward and home numbered fleet command ships through the 1970s.[773] Meanwhile the Navy retained some of the wartime AGCs, and in the early 1970s built two new specially designed amphibious command ships (LCCs), earmarked to direct amphibious landings and assaults.[774] During the late 1970s, however, the World War II-era cruisers retired (and were replaced in the fleet by modern cruisers that could not meet the space requirements of a command ship). The LCCs and two converted amphibious transport docks (LPDs) were reconfigured as sea-based Navy fleet command ships.[775] During the 1990s, these four fleet command ships were re-configured again, to be able to run joint sea-based operations ashore as well as at sea.[776] Two of these ships were forward-based—in Italy and Japan—as the Sixth and Seventh Fleet command ships. Two were based at home, as Second and Third Fleet command ships. (The Fifth Fleet had been forward based ashore in Bahrain, without a command ship, since its inception in 1995).[777]

At the beginning of the 21st century, with its existing four command ships aging, the Defense Department and the Navy were discussing various alternatives to replace them,

including new joint command and control ships (JCCs), and/or placing command and control modules on other existing ships.[778]

The 2002 *Naval Transformation Roadmap*'s "FORCEnet" concept calls for transformation of the Navy's sea-based joint command and control capabilities.

21st-century "Sea basing": bringing it together

At the beginning of the 21st century, the Marine Corps and the Navy began to explore concepts—focused on the design of new afloat prepositioning ships—that would conflate forward sea-based amphibious, logistics, fires, command, and, perhaps, special operations functions. At the same time, the Navy was seeking to transform its sea-based strike and surveillance capabilities.

In the 1990s, the Marines began to develop sea basing as an integral part of their new concepts of Operational Maneuver from the Sea (OMFTS) and Ship to Objective Maneuver (STOM).[779] They took as their starting point the traditional concept of sea-based amphibious operational logistics—deriving maximum military advantage from keeping combat service support assets afloat to support amphibious operations and power projection ashore, sending them ashore only as needed. The Marines' aim has been to reduce or eliminate the need for intermediate logistic build-ups ashore in order to prosecute a major amphibious assault.[780]

In June 2002, the Chief of Naval Operations (CNO) announced a new U.S. Navy operational concept: "Sea Basing." This concept appeared broader than enhancing STOM. It sought to build up and net together U.S. command and control, fire support and logistics capabilities at sea to support joint U.S. forces ashore. In part, this represented a return to the Mobile Support Group "floating base" concept that the Navy had abandoned by the 1990s.[781] The CNO specified the next generation of destroyers and Afloat Prepositioning Force ships as being part of this effort. The CNO's "Sea Power 21" operational vision also included the concept of "Sea Strike," which included sea-based time-sensitive strike capabilities; and "Sea Shield," which included providing sea-based Navy air defense for forward bases used by any service, as well as by the nation's allies.

In July 2002, the Secretary of the Navy and the uniformed heads of the Navy and Marine Corps promulgated the *Naval Transformation Roadmap*. This document too discussed Sea Basing as one of the sea services' three main transformational capabilities, but in far greater detail than the CNO did in his presentation. It too specifically included in its "Sea Basing" concept three particular sets of capabilities: Command and control, heavy fire support, and logistical stockpiling.

Another innovative integrative sea-basing concept that gained some publicity over the 1990s and into the 21st century was the Mobile Offshore Base (MOB). The MOB

was touted by its advocates—including at least one important Navy flag officer and many Marines—as providing a very useful large offshore multi-purpose joint afloat sea platform. Its detractors, on the other hand, stressed its potentially high vulnerability, considerable self-defense and sea-keeping requirements, and expense.[782]

Observations

What emerges from this story—as from so much of U.S. Navy history—is the extraordinary **variety** and **utility** of the Navy's historical forward sea basing experience. Sea-based forces have deployed forward in many configurations, supported a variety of deployment strategies and employment strategies, a variety of types of naval operations, and in many different locations. Sea basing's potential for the future—as illustrated by its record in the past—appears great.

Joint and Navy planners and decision-makers can usefully examine this historical record to:

- Uncover possible **innovative areas of future sea basing not currently under examination**
- Analyze the **factors driving sea basing in the past**—before the Cold War and the first post-Cold War decade—that might have relevance yet again in the first decade of the 21st century and beyond.

The analysis above should prove a useful starting point.

VI. Deployment strategy and transformation

U.S. Navy deployment strategy and transformation

Transformation of the nation and its Navy

The U.S. Navy has seen two great lasting transformational changes:

- The change from individual ships and/or small squadrons principally designed formilitary operations other than war (MOOTW), to a unified battle fleet principally designed to combat and defeat other navies.

- The change from this unified battle fleet to a small number of combat-credible fleets principally designed to directly influence events ashore.

The first transformation was driven by the achievement of world power status by the United States around the turn of the last century, and the consummation of its trans-Continental development. It was accompanied by a burst of creative naval professional thinking about the role of navies in general and the U.S. Navy in particular, most notably Captain Alfred Thayer Mahan's widely read *Influence of Sea Power on History* (1890), and the development of fleet tactics. It was fueled by the extraordinary capabilities of American technology and Industry. And it occurred during an era when Great Britain was losing her undisputed position as the world's pre-eminent naval power, and several other nations besides the United States were building great naval fleets as well.

The second transformation was driven by the achievement of super-power status by the United States in the middle of the last century, and the consummation of its oceanic expansion. While accompanied by changing professional naval views on the uses of sea power, these views were not widely known or read—even within the Navy. It was enabled by the creation before and during World War II of fast carrier task force, underway replenishment, and fleet submarine operational concepts and systems. And it occurred as the United States was about to become the world's pre-eminent naval power, having defeated the Imperial Japanese Navy and eclipsed all other world fleets, including the exhausted and relatively impoverished Royal Navy.

Transformation of U.S. Navy deployment strategy

These two transformations were accompanied by two major changes in the deployment strategy of the Navy:

- From a half-dozen forward deployed squadrons to a unified battle fleet at home designed to surge forward
- From a unified battle fleet at home to two or three combat-credible fleets more or less permanently deployed in two or three forward hubs

The first great transformation resulted in the Navy becoming the nation's first line of defense, with a primary mission of sea control. To accomplish this, the Navy was consolidated and concentrated into one main battle fleet (and occasionally two such fleets) designed to surge forward across the ocean from bases in the United States, to battle with and defeat rival fleets. Small permanent forward-deployed and homeland defense elements of the fleet co-existed with the battle fleet, but they were clearly secondary operations. The fleet exercised and practiced its battle concepts, and developed concepts and procedures for sustaining itself while fighting forward far from home. The fleet operated in a naval environment in which it was only one of several—or at least of a few—great-power battle fleets.

The second great transformation resulted in the Navy's becoming integrated in a multi-service shared defense effort, with primary missions of power projection, naval presence and strategic deterrence, all based on the maintenance of continued sea control. To accomplish this, the Navy simultaneously maintained two—later three—combat-credible forward fleets, at first in the Mediterranean and the Western Pacific, and later in the Arabian Sea and Persian Gulf. The fleet operated in a naval environment in which it had no peer at sea, although it faced potential serious wartime challenges from the Soviet submarine fleet, and in the 1970s and 1980s from other Soviet fleet elements as well.

There were many other changes and innovations in the long history of the U.S. Navy and its deployment strategy. These two, however, were the changes that can be said to have been transformational.

The next naval transformation

From our survey of the history of the Navy's deployment strategy, it is difficult to see, in 2002, the shape or timing of the next major U.S. Navy transformation—on the order of those of the 1890s or the 1940s. It does not, however, look imminent.

Rather, it appears that, for the foreseeable future, the U.S. Navy will remain the world's premier naval force, with few potential challenges on the world's oceans. It also appears that that force will be more integrated into the total joint military force of the nation, and that it will continue to focus on influencing events ashore far forward.

The Navy will doubtless be challenged at times when it operates in littoral waters. This "anti-access" challenge does not appear to be appreciably different from similar challenges to the forward deployed Navy of the Cold War era—an era when U.S. Navy intelligence gathering ships were attacked and seized off hostile coasts; U.S. Navy patrol planes were shot down around the Soviet and Chinese littorals; a half-dozen U.S. Navy ships were mined off Korea; at least one U.S. Navy destroyer was attacked in the Gulf of Tonkin; and U.S. Navy surface combatants were attacked from the air and mined in the Persian Gulf.

Likewise, while new concepts of sea basing may change how the Navy is supported forward, it is not clear yet that they will be of the same transformative nature as the development of doctrine for the seizure of advanced bases in the 1920s through the early 1940s; or the creation of mobile logistics forces and Underway Replenishment Groups in the mid-Pacific in 1944 and 1945.

This analysis applies to the Navy writ large, at the strategic level of analysis. Individual warfare areas—like mine countermeasures and anti-submarine warfare—may well undergo transformations in the near term, as may certain naval warfare systems, like unmanned aircraft and undersea vehicles. It is hard, however, to foresee a transformation by the Navy as a whole coming along soon, on the order of the great transformations of the turn and the middle of the last century.

VII. Observations and conclusions on U.S. Navy deployment strategy

Overview

In this section we make some observations and draw some conclusions from the data presented in the preceding sections. Our observations and conclusions fall in eight general areas:

- The evolution of U.S. Navy deployment strategy
- U.S. Navy deployment strategy and geography
- U.S. Navy deployment and employment strategies
- U.S. Navy deployment and procurement strategies
- U.S. Navy deployment strategy and homeland defense
- U.S. Navy deployment strategy and innovation
- U.S. Navy deployment strategy and naval leadership
- U.S. Navy deployment strategy and alignment with other types of Navy strategy

The evolution of U.S. Navy deployment strategy

From the history we have just recounted, several general conclusions can be drawn:

- The evolution of **U.S. Navy strategy has been rich and complex**. Distinctive deployment strategies, planned employment strategies, deployment strategies, procurement strategies, organizational strategies and other types of strategies can be traced for the United States Navy through its history.
- **Change** in U.S. Navy **deployment strategy** has been a constant. We were able to identify some 25 distinctive periods. The Navy's flexibility in changing its deployment strategy is a result of changes in the external environment, in the domestic environment and strategic outlook, and in naval and other technologies.
- That said, there had **not yet been a major shift in the Navy's deployment strategy in the over 50 years between the late 1940s and 2002.** Combat-credible forward presence in two or three hubs has been the Navy's deployment strategy since at least 1950. There had been, however, two major but second-order changes of note to that strategy: the forward-basing of the fleet in the western Pacific in the

1970s; and the addition of a third forward hub in the Arabian Sea and Persian Gulf in the late 1980s and early 1990s

U.S. Navy deployment strategy and geography

- **Forward deployment has been the norm,** whatever the deployment strategy, whatever the size and shape of the fleet, whatever the existing naval technology, and whatever the domestic and world situations.
- The forward deployment has been **global**, seldom limited to only one or two regions of the world.
- **The Caribbean, the Western Pacific** and, to a somewhat lesser extent, the **Mediterranean** have been important U.S. Navy forward deployment hubs since the very earliest days of the Republic.[783]
- **The Indian Ocean and Persian Gulf** area has only become an important U.S. Navy hub since the last decade of the Cold War.[784]
- **Latin American** waters south of the Caribbean were important hubs during the 19th century, and were occasionally of interest in the 20th.[785]
- **African** waters figured prominently as areas for U.S. Navy deployments only for a few decades prior to the Civil War. They became of some modest interest again during the Cold War.

U.S. Navy deployment and employment strategies

- The Navy has had **very active actual employment strategies** for most of its history, and has needed similar deployment strategies to support them. The U.S. Navy has normally been a busy, highly operational, oft-deploying, on-the-move entity since its beginnings.
- **Showing the flag, deterrence, commerce protection, and operations other than war (OOTW)—**not combat operations—have normally characterized the actual employment strategy of the Navy's deployed forces. Combat against a great or medium power, while often intense and all-important, has been infrequent.
- Nevertheless, the Navy **usually had a wartime planned employment strategy,** even in periods of extended peace. During most of the 19th century, this planned wartime employment strategy was to raid enemy commerce on a global basis, break enemy blockades, and fight single-ship actions with enemy warships wherever they might be found. During the last decade of the 19th century and the first four decades of the 20th century this planned wartime employment strategy changed to one of seeking out and destroying enemy battle fleets, at some distance from the United States coast.
- **The deployment strategy of the Navy usually has been tightly bound up with its *actual* employment strategy.** When the actual peacetime employment strategy

was at significant variance with the planned wartime employment strategy, deployments—even exercises—in support of the plans suffered.

- **The great exception to this was the U.S. Navy between the two world wars.** That U.S. Navy focused on exercise deployments to practice the planned wartime strategy, rather than carrying out naval operations other than war.
- **During and after the Cold War, the U.S. Navy sought to have the same warships and the same deployments support both peacetime actual employment strategies and planned wartime employment strategies** at the same time and in the same forward locations.
- **Wars—even large ones—were not often by themselves catalysts for changing deployment strategies.** Small wars like the Mexican, Spanish-American, Korean, Vietnam and Gulf Wars did not appreciably alter the dominant U.S. Navy deployment strategy of the day. The Civil War, World War I, and World War II did radically change the Navy's deployment strategy. Following those wars, however, the Navy reverted to a variant of the prewar deployment strategy.
- **Joint operations** have been routine, especially joint combat operations. Only recently, however, have they become more integrated than mutually supportive.
- **Combined operations** forward have been frequent, especially with the Royal Navy

U.S. Navy deployment and procurement strategies

- The U.S. Navy has been a **large and powerful military force** for most of its history. Only in a few eras—notably the late 18th century and a few decades in the 19th after the Civil War—has the naval procurement strategy of the United States not allowed its Navy to be ranked among the world's top naval powers. For more than six decades, the country has deployed the world's leading navy and, for more than two decades before that, one of the world's two leading navies.
- As procurement strategies and other strategies changed, the **capability, size and manning requirements** of the individual ships, shore facilities and staffs of the Navy increased enormously during the past century, despite wide variations in numbers of ships in the fleet:[786]
    - The Navy of 2002 had 337 ships and 378 thousand officers and men.[787]
    - The Navy between the wars had about the same number of ships as in 2002 but a third the number of people in uniform.[788]
    - The Navy at America's entry into World War I also had about the same number of ships as in 2002, but half the number of people in uniform.[789]
    - The Navy at America's entry into World War II had about the same number of people in uniform as in 2002, but more than twice the number of ships.[790]

U.S. Navy deployment strategy and homeland defense[791]

The corollary of the Navy's deployment strategy having normally been forward is its having seldom been deployed off America's own coasts.

Deployments off shore to directly protect the nation and its coastal waters close in have been infrequent and relatively unimportant. The list has been as follows:

- Various defensive actions, including innovative if unsuccessful submarine and mining, operations to attack British ships in American waters during the War for Independence
- Jefferson and Madison's gunboats deployed in American harbors and bays before and during the War of 1812
- Naval officer participation in all the major joint and Army boards and commissions of the 19th and early 20th centuries drawing up U.S. coast defense requirements
- The brief creation and deployment of a Home Fleet off the Atlantic Coast in 1841, during a war scare with Great Britain
- The use by the Confederacy of ironclads, mines, submersibles, and obstructions to challenge—unsuccessfully, in the long run—Union Navy and joint assaults on southern ports and coastal areas
- The maintenance of a small coastal defense force of monitors and torpedo boats in the decades following the Civil War
- The creation of a Flying Squadron, a Northern Patrol Force, and an Auxiliary Naval Force for a few months in 1898 as a result of public, press and Congressional concerns regarding potential Spanish attacks on the East coast
- Deployment of early submarines and aircraft as coast and base defense systems for a decade or two following their invention
- Naval Districts in 1903 to help defend naval forces in and off their home bases (later they lost their defense functions, and still later were abolished).
- US Marine Corps Defense Battalions to defend U.S. Pacific possessions (and naval advanced bases) In the late 1930s and early 1940s
- Sea Frontiers created in the early 1940s to coordinate with the Army in defending the United States and American possessions; these too later lost their defense functions and, later still, were abolished
- The Navy, ill-prepared and initially unsuccessful, fought off a German submarine campaign in East Coast and Gulf Coast waters in 1942, with the U.S. Army Air Forces and the British and Canadian navies and air forces
- The Navy contribution to the air defense early-warning barrier of the 1950s—the Navy provided ships and aircraft to barrier commands and seaward extensions of land-based radar lines
- The initial rationale for developing the SOSUS network of underwater acoustic arrays in the 1950s was to provide a system to warn against submarine-launched

attacks on the United States that complemented the air defense early warning systems

- The 1980s development of the Maritime Defense Zones (MARDEZ) as a means of integrating Coast Guard and Naval Reserve forces more fully into a comprehensive anti-Soviet Navy "Maritime Strategy"
- The improvement of port and shore security at U.S. Navy bases in the United States as well as overseas, following the terrorist attack on U.S.S. *Cole* in Yemen in 2000
- The immediate positioning offshore of U.S. Navy carriers and air defense surface combatants in the wake of the attacks on the World Trade Center and the Pentagon on September 11, 2001
- The subsequent Navy provision to the U.S. Coast Guard of the 13-ship patrol coastal (PC) force

From these examples, several conclusions can be drawn:

- Homeland defense deployments come and go.
- They normally co-exist with forward deployments, which receive more resources and emphasis.
- They often receive more emphasis when national and naval defense budgets are high or increasing ("a rising tide lifts all boats").
- Homeland defense deployments are by their nature normally very joint, and involve reserve and non-military elements as well.
- Public, press, presidential, and Congressional pressures often drive these deployments. The Navy professional officer corps usually opposes them, arguing for forward deployments as more preferable.
- Technology often helps drive systems forward. As submarines and aircraft developed longer range and more robustness, they moved from being coastal and harbor defense systems to forward deployable and deployed systems.
- Organizations created to oversee Navy homeland defense roles often either lapse into administrative or logistics functions, as happened to the Naval Districts and Sea Frontiers, or migrate toward forward deployment roles, as happened to the Maritime Defense Zones and Naval Mobile Inshore Warfare Units.

U.S. Navy deployment strategy and innovation

The U.S. Navy has **usually been highly innovative** throughout its history. No era we surveyed was lacking in significant innovations.

Innovation in the U.S. Navy has been of **several types**: organizational, operational, and educational, as well as technological. In most eras, most kinds of innovation can be found.

Innovation does **not appear to be correlated** with deployment strategy in any particular way.

For example, in the interwar period of the 1920s and 1930s, the Navy seldom deployed the fleet forward. Instead, while exercising the fleet in tactics, techniques and procedures, it also used that fleet as a giant naval laboratory to test current and innovative new ideas and systems, including naval aviation, amphibious warfare, and gunnery fire control.

On the other hand, the Navy of the 1950s perfected the first sustained deployments of combat-credible forward fleets, in the Mediterranean and the western Pacific. Nevertheless, that Navy was no less innovative than that of the interwar period: The 1950s saw the introduction into the fleet of, for example, nuclear propulsion, nuclear weapons, an array of missile systems, jet aircraft, amphibious and logistics helicopters, and the SOSUS system.

Certain innovations have been critical to the capability of the fleet to sustain certain deployment strategies. These innovations have usually been in the realms of propulsion and communications.

Innovations in **fuel and propulsion systems** that helped change deployment strategies included the change from wind to coal fuel to oil fuel to, in some important cases, nuclear power; and the constant improvements in naval engine efficiency. The change from wind to coal fuel drastically improved the fleet's tactical mobility while curtailing its strategic mobility. The subsequent changes restored much of the strategic mobility the fleet had lost.

Innovations in **Communications** that helped change deployment strategies included trans-oceanic cables, radio communications, satellite communications, and digitization.

U.S. Navy deployment strategy and naval leadership

The historical record of U.S. Navy deployment strategy shows that **individuals and groups can matter**, especially presidents, secretaries of the navy and chiefs of naval operations. Examples abound:

- During the Quasi-War, Secretary of the Navy Stoddert had a deployment strategy of surge operations in the Caribbean.
- During the Barbary Wars, President Jefferson had a deployment strategy of surging U.S. blue-water forces to the Mediterranean.
- The Monroe, Quincy Adams, and Jackson Administrations developed a deployment strategy of maintaining forward distant stations to protect burgeoning American commerce.
- Powerful congressmen pushed to deploy a Home Squadron to patrol the east coast in 1841.

- Upon the advice of his Blockade Board, Secretary of the Navy Gideon Welles adopted a strategy of blockade and riverine operations that dovetailed with the Anaconda Plan proposed earlier by General Winfield Scott.
- Confederate Secretary of the Navy Mallory adopted a deployment strategy of forward-based blockade running and breaking, commerce raiding, and homeland harbor defense.
- Following the Civil War, Admiral David Dixon Porter ensured that Navy procurement and deployment strategies were well aligned with the actual employment strategy of the day: a return to the forward stations.
- Admiral Mahan, President Roosevelt and others adopted a strategy of fleet consolidation and forward station closure.
- Presidents Roosevelt, Taft and Wilson adopted strategies of frequent fleet forward surge deployments for diplomatic ends. Roosevelt deployed the Great White Fleet over the protests of his admirals.
- The Navy and the Wilson Administration eventually adopted much of Admiral William Sims's deployment strategy, which sent much of the fleet forward, but divided it into pieces.
- After World War I, Secretary of the Navy Josephus Daniels decided to divide the fleet between the two oceans, and did so.
- Presidents Harding, Coolidge and Hoover adopted strategies of keeping the fleet at home on the west coast, to save money and avoid provoking potential enemies, but allowed it to prepare for war forward in the Pacific.
- Prior to American entry in World War II, Chief of Naval Operations Admiral Harold R. Stark conceptualized "Plan Dog" and deployed forces from the Pacific to the Atlantic to refocus the naval efforts of the nation against Germany. Roosevelt also deployed forces in the Pacific farther forward, from California to Hawaii.
- During World War II, as the Commander in Chief, U.S. Fleet (COMINCH), Admiral Ernest King conceptualized a global deployment strategy for the vast forces at his disposal, focusing them on the Central Pacific drive against Japan, but not completely neglecting other theaters.
- Following World War II, Secretary of the Navy James Forrestal, Admiral Forrest Sherman and other naval leaders conceptualized the potential of combat credible forward presence and then implemented it, first in the Mediterranean and later in the Western Pacific.
- In the early 1970s, Chief of Naval Operations Admiral Elmo R. Zumwalt, Jr. advocated and pushed hard to implement overseas home-porting schemes to base significant naval forces forward in the Western Pacific and the Mediterranean.
- In the late 1970s, Carter Administration officials pushed the Navy and other services hard to focus their attention on deploying significant forces forward to a new and very demanding third hub - the Indian Ocean and Persian Gulf.

- In the 1980s, Secretary of the Navy John Lehman, Chiefs of Naval Operations Admiral Thomas Hayward and Admiral James Watkins, and many other aggressive U.S. Navy flag officers sent more and stronger intermittent U.S. Navy deployments farther north in the Northeast Atlantic and Northwest Pacific, to intimidate, deter, and prepare for war against the Soviet Navy.
- In the 1990s, using the Navy policy statements "...From the Sea" and "Forward...From the Sea" as references, Rear Admirals Philip Dur and Joseph Sestak successively conceptualized and advocated a forceful U.S. deployment strategy of combat credible forward presence in three hubs, with a concomitant de-emphasis of smaller deployments in less important locations for engagement.
- In 2002, as part of his new "Sea Power 21" operational vision, Chief of Naval Operations Admiral Vern Clark advocated modifying the U.S. Navy's deployment strategy to "spread the striking power and presence of the United States Navy and the United States Marine Corps team more widely around the world"

Aligning Navy deployment strategy

Aligning strategies

Ideally, the Navy's deployment strategy will always be well aligned with the other dimensions of strategy, which should be mutually supporting. It has been a premise of this paper these dimensions are developed in parallel, not in sequence.

These other dimensions include, as outlined at the beginning of this paper:

- Declaratory strategy
- Procurement strategy
- Planned employment strategy
- Actual employment strategy
- Organizational strategy

Each dimension of strategy is driven by a mix of different influences and players, so reaching the ideal of total alignment can be difficult. For example, Congress and industry can play important roles in designing a Navy procurement strategy, while their influence is normally much less regarding the other dimensions. Also, the uniformed Navy Officer Corps, within whatever joint planning processes exist at the time, have had far more freedom to devise planned employment strategies than they have had in devising other dimensions of strategy.

Examples from the past

Accordingly, alignment has not always been easy to achieve. For example:

- The early 19th-century U.S. procurement strategy that built and equipped 17 ships of the line for war-fighting between the War of 1812 and the Civil War was not well aligned with either the Navy's deployment strategy of forward stations for commerce protection and suppression of piracy, or its actual wartime employment strategy of amphibious operations and blockade against weak naval powers.[792]
- In the U.S. Navy of the post-Civil War decade, the procurement strategy of the Navy was aligned with its peacetime deployment and employment strategies, but not with its planned wartime employment strategy of coastal defense and commerce raiding, let alone the preferred strategy of the naval officer corps (to defeat an enemy battle fleet).[793] During the early days of the Spanish-American war, the planned employment strategy for the fleet of consolidated offensive operations was not well aligned with its actual organizational and employment strategies, which included separate coastal patrols for homeland defense
- Despite the unification of the battle fleet by 1905, it was not until 1915 that the office of Chief of Naval Operations was created, to provide professional naval leadership to the service and its fleet. And it was not until the 1960s that the technical bureaus came under the CNO's authority.
- In the early days of U.S. Navy participation in World War I, U.S. Navy declaratory strategy, planned employment strategy, and deployment strategy were not well aligned with an actual employment strategy that emphasized anti-submarine operations.
- U.S. Navy interwar procurement strategy, which emphasized battle line, aviation, and submarine procurement almost exclusively, was not well aligned with a planned forward employment strategy that required significant amphibious assaults and mobile logistics support.
- U.S. declaratory strategy of neutrality after the outbreak of World War II in Europe was not aligned with U.S. employment strategy escorting convoys to Britain and conducting anti-submarine operations against German U-boats.
- U.S. declaratory strategy of deterring Japanese attacks in the Pacific in 1941 was not aligned with its deployment strategy basing the fleet at Pearl Harbor with minimal sea and air defenses.
- U.S. deployment strategy shifted in the 1970s to maintaining a third combat-credible forward naval presence force "hub" in the Indian Ocean, but U.S.

Navy organizational strategy was not realigned until creation of the Fifth Fleet in 1995.

- U.S. organizational strategy calling for activation of Maritime Defense Zones was not well aligned with U.S. Navy declaratory, deployment or employment strategies at the time of the September 11, 2001 attacks on the World Trade Center and the Pentagon.

Aligning deployment and employment strategies in war

The inherent mobility and flexibility of naval forces, enhanced by the sustainability usually built into American warships and their supporting systems, enables them **to align realign deployment and employment strategies easily**.

This has been especially true when wars—or war scares—have suddenly occurred. Thus:

- A Home Fleet was quickly formed from ships on forward station during the war scare of 1841, and just as quickly redeployed to the Caribbean "Near Abroad" when the scare passed.
- The pre-Civil War far forward squadrons were called home and formed into blockading squadrons in a matter of months in 1861. The forward squadrons were just as quickly reconstituted far forward in 1865.
- The Battle Fleet was quickly broken up in 1917 and its constituent parts re-deployed in separate force packages for employment in the North Atlantic and Mediterranean.
- The attack on Pearl Harbor triggered a massive shift of U.S. Navy units from the Atlantic to the Pacific, to begin operations in strength in that theater.
- The beginning of the Cold War triggered an equally massive, though somewhat slower, shift of U.S. Navy units to the Atlantic and especially the Mediterranean in the late 1940s.
- Without changing the basic deployment or organizational strategy of the fleet, naval combat forces were built up far forward in the western Pacific each time the Cold War turned hot—off Korea from 1950 through 1953, and off Vietnam from 1964 through 1973.

Aligning deployment and employment strategies in peacetime

Alignment between deployment and employment strategies in peacetime is often much harder to achieve. Often in peacetime, the fleet follows an *actual* employment strategy that differs—sometimes markedly—from its *planned* employment strategy. During such periods, the resources the country provides to the Navy do not allow for a procurement strategy that supports both the actual and planned employment strategies. At the same time, there is usually a bias in deployment strategy to align with the *actual* employment strategy vice the *planned* deployment strategy.

Thus in much of the 19th century, the *actual* employment strategy was to protect American trade against Third World threats simultaneously in several far-flung reaches of the globe, sometimes in cooperation with European naval forces. Meanwhile, the *planned* naval strategy was to fight at sea against a European naval power, attacking his merchant ships, defending those of the United States, and dueling on occasion with his warships.

Sloops and other small warships were prized in carrying out the actual employment strategy, men-of-war were necessary for the planned employment strategy, and frigates were handy for both. The procurement strategy of the country was to build and maintain all of these ship types, but maintenance of the men-of-war inevitably lost out to the requirements of keeping numerous sloops and other small ships forward at sea.

The country's naval deployment strategy was aligned with its actual naval employment strategy, as it was assumed that, in time of war with a European power, the forward squadrons could be called in and their forces concentrated against the "peer competitor".

On the other hand, in the 20th-century period between the two world wars, the procurement strategy of the Navy, such as it was, was aligned for the most part with its *planned* employment strategy, not with its *actual* employment strategy. That is, the country spent what little it did of its resources on modernizing a fleet optimized for future forward combat at sea with another naval power, rather than on current presence, MOOTW or smaller scale contingency operations. The Navy's deployment strategy, however, was aligned with both the *actual* and *planned* employment strategies, deploying small forces forward while keeping the battle fleet in home waters for exercises and experimentation.

Naval strategic alignment was pretty good during most of the Cold War. The actual and planned hubs of naval operations largely overlapped: The Mediterranean and the western Pacific were viewed as critical in both peace and war, and the Navy deployed in both regions routinely. The Norwegian Sea, however, while critical in the Navy's planned employment strategy, was in an area of actual peacetime stability, and only saw large U.S. Navy forces deploy there once a year or so. On the other hand, the Arabian Sea and Persian Gulf became increasingly important foci of Navy deployment strategy during the 1980s, although national security planners differed on the importance that would be placed on the area in wartime.

It is the power of these alignments that has caused the combat-credible forward presence deployment strategy to endure for as long as it has. Throughout the Cold War and the first post-Cold War decade, this deployment strategy proved capable of aligning with a succession of actual and planned employment strategies:

- Conventional and nuclear strikes at Soviet targets
- Limited wars
- Crisis response

- Sea control
- Naval diplomacy
- The Maritime Strategy
- Engagement and enlargement

Meanwhile, the Navy's procurement strategy was to equip the fleet with forces, systems and people capable of deploying for long periods far forward and of being employed across the entire spectrum of actual and planned naval operations.

VIII. Future deployment strategy options

Introduction

It is the contention of this paper that the nation's naval deployment strategy is not immutable, and that it should change—and often has changed—as circumstances dictate.

It is also our contention that there has been very little change in the basic deployment strategy of the U.S. Navy since the late 1940s. We believe this is because the basic factors driving that deployment strategy have not changed during the past half-century. These factors include:

- The world situation
- U.S. national security objectives, overseas and for homeland defense
- The level of funding and other resources available to the fleet
- Quality of life policies
- The level of U.S. naval technology, including innovations
- Size and capabilities of the fleet
- Capabilities of other services and allies
- Organization of the U.S. armed forces, including the fleet
- Views of the nation's military and naval leadership on the proper deployment of naval power
- Insights drawn from examining the Navy's past deployment strategy

This paper has sought to illuminate the last of these factors.

The Navy in 2002 is contemplating changing its deployment strategy. As part of his new "Sea Power 21" operational vision, Chief of Naval Operations Admiral Vern Clark has advocated modifying that strategy to "spread the striking power and presence of the United States Navy and the United States Marine Corps team more widely around the world."

What insights can be drawn from our recounting and analyzing the history of U.S. Navy deployment strategy that can assist Navy and joint decision-makers and planners in contemplating future Navy deployment strategies?

Seven deployment strategy models

Earlier in *Sea Changes*, we identified and analyzed 25 separate eras in U.S. Navy deployment strategy history, each characterized by a significant change in the global pattern of deployments. Organizing these eras by similarities in type of deployment strategy rather than chronologically, we can identify seven distinct models of deployment strategy suggested by the deployment strategy of the Navy from its beginnings and up to the present.

The first six of these models are:

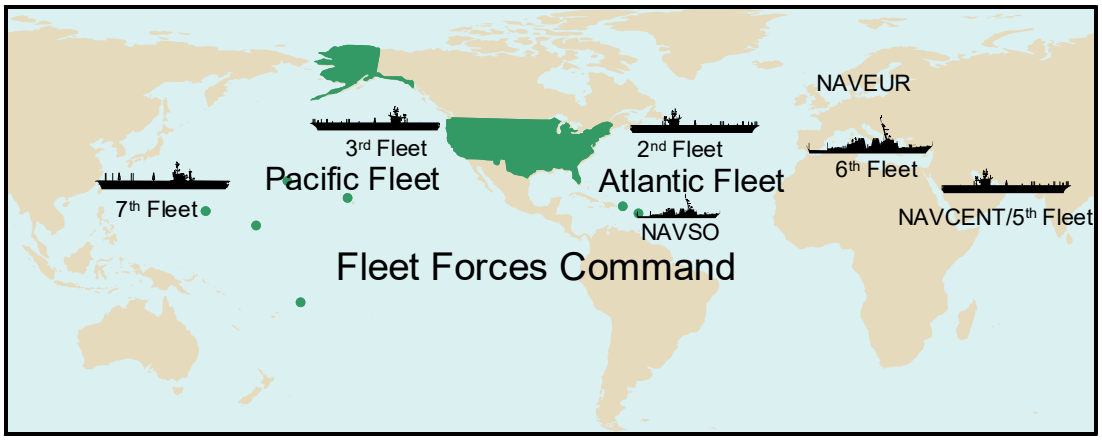
- Combat-credible forward presence in hubs (the current model)
- Combat and diplomatic surge readiness
- Global Forward Military Operations Other than War (MOOTW)
- Cruising
- Experimentation
- Homeland defense

Obviously, various characteristics of each model can be used to create composite models. So we have built such a notional seventh composite model here as well.

In the following sections we will analyze each of the seven models in turn, to help identify characteristics of U.S. Navy deployment strategy that might prove relevant as options for the future.

In addition to being derived from the historical experience of the Navy, each of these models has also been advocated publicly since the end of the Cold War by at least one noted naval expert—often in uniform or recently retired. These endorsements are noted.

Model I: Combat-credible forward presence



This model is the one that has characterized U.S. Navy deployment strategy since at least 1948, and that characterizes U.S. Navy deployment strategy as of 2002.

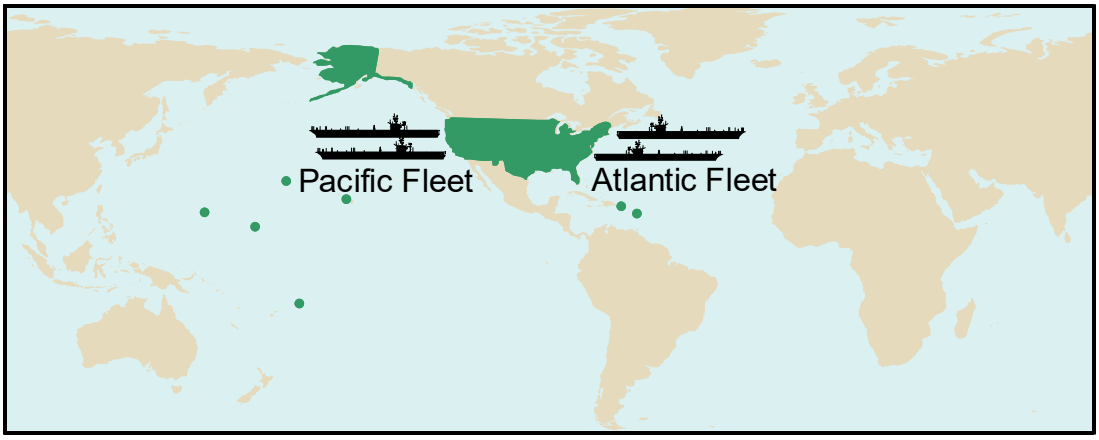
The model posits two or three balanced, combat-credible forward battle fleets permanently present in the Mediterranean, the Western Pacific and the Arabian Sea—the three areas of greatest concern to American foreign policy. These are the nation's most powerful, ready and combat-capable naval forces, and are routinely rotated forward from the United States. They are backed up by fleets on the east and west Coasts whose primary duties are the preparation of the next groups of forces to be rotated forward.

The potential missions of the forward fleets are all-inclusive. They must be capable and ready while forward deployed for the full range of possible naval activities, from showing the flag through a wide variety of military operations other than war (MOOTW) through smaller-scale contingencies through full-scale combat.

Such forces can reassure friends and allies and intimidate potential adversaries. They can enable and participate in joint and combined operations. Also, they are immediately available, especially if positioned in areas of frequent crises.

On the other hand, maintaining these forces forward is quite costly. These costs include the large force structure needed to sustain forward rotations; forward land and/or sea basing and the attendant logistics tail stretching back to the United States; strains on human resources due to demanding and lengthy deployments; the deployment of combat-credible forces on occasion when such capabilities will not be needed; and lost opportunities to be able to deploy forces outside the central hubs for forward operations elsewhere, for homeland defense missions, and/or for experimentation.

Model II: Combat and diplomatic surge



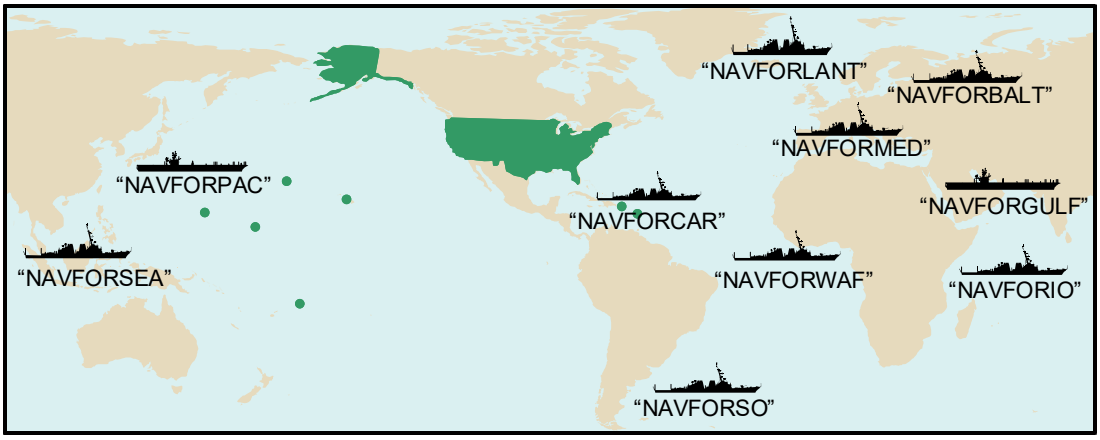
This model is derived from the deployment strategies of the Navy from 1798 to 1815, and from 1905 to 1914.[794]

The model posits one or two battle fleets operating out of bases in the United States. These are the nation's most powerful, ready and combat-capable naval forces, and are routinely deployed for exercises and battle experiments off America's coasts. When required by the nation, these fleets can and do deploy forward rapidly wherever needed.[795] The potential missions of these fleets are all-inclusive. They must be capable and ready for the full range of possible naval activities, from showing the flag through a wide variety of military operations other than war (MOOTW) through smaller-scale contingencies through full-scale combat.

Such forces, when surge deployed forward, can seek to show American interest in an area; reassure friends and allies; and intimidate potential adversaries. Not only could such surge deployments directly influence a situation, but their example—communicated through the media—can influence observers farther afield. They can enable and participate in joint and combined operations.

Such forces are probably less costly, and will probably spend less time at sea away from home, reducing problems—like retaining sailors—that derive from high PERSTEMPO. On the other hand, these forces are not routinely visible to overseas allies, friends, neutrals or potential adversaries. And they would not be immediately available in a crisis, should such a crisis occur in an area where they would have otherwise been forward deployed, and should the crisis require immediate response.[796] In any event, it takes time for them to get where they need to go, especially if they need to go to the Western Pacific or the Arabian Sea. And they need to carry much of their logistics support with them.

Model III: Global forward presence and expeditions



This model is derived from the deployment strategies of the Navy from 1815 to 1861, and from 1865 to 1905.[797]

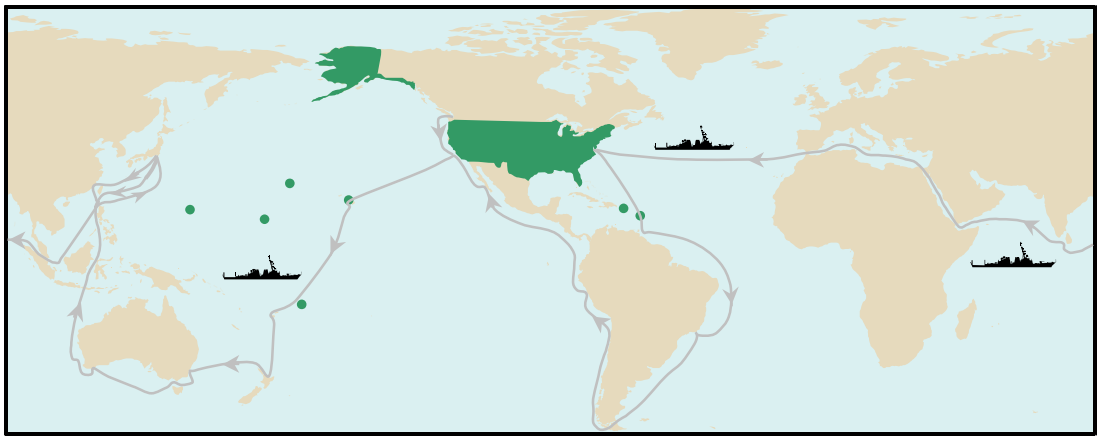
The model posits half a dozen or so small squadrons operating forward in various areas around the world, tending directly to the nation's global interests. These are the nation's most ready naval forces. When required by national command authorities, these fleets can redeploy back to the United States, or consolidate into larger expeditionary fleets forward.

The potential immediate missions of these fleets are all-inclusive, but at the lower ends of the warfare spectrum. They must be capable and ready for the full range of possible naval activities, from showing the flag through a wide variety of military operations other than war (MOOTW) through very small-scale expeditionary contingencies.

Such forces can reassure a wide variety of friends and allies and intimidate potential adversaries. They can enable and participate in joint and combined operations. Being small force packages, a large percentage of them are likely to be able to be home-ported overseas.

On the other hand, maintaining these forces forward is still costly. These costs include the large force structure needed to sustain numerous forward rotations; forward land and/or sea basing for support, plus a logistics tail stretching back to the United States; strains on human resources due to demanding and lengthy deployments, and foreign residency; lost opportunities to be able to deploy forces for homeland defense missions, and/or for experimentation; inability to influence events and perceptions ashore due to lack of combat credibility; lack of readiness for large-scale operations; and difficulties and lost time involved in bringing the fleet together if needed for larger-scale contingencies and combat. Moreover, lacking powerful combat retaliatory punch, they may take unacceptable losses if attacked early on.

Model IV: Forward cruising



This model is derived from the deployment strategies of the Navy in the 1840s, 1870s, 1900s and 1940s.[798]

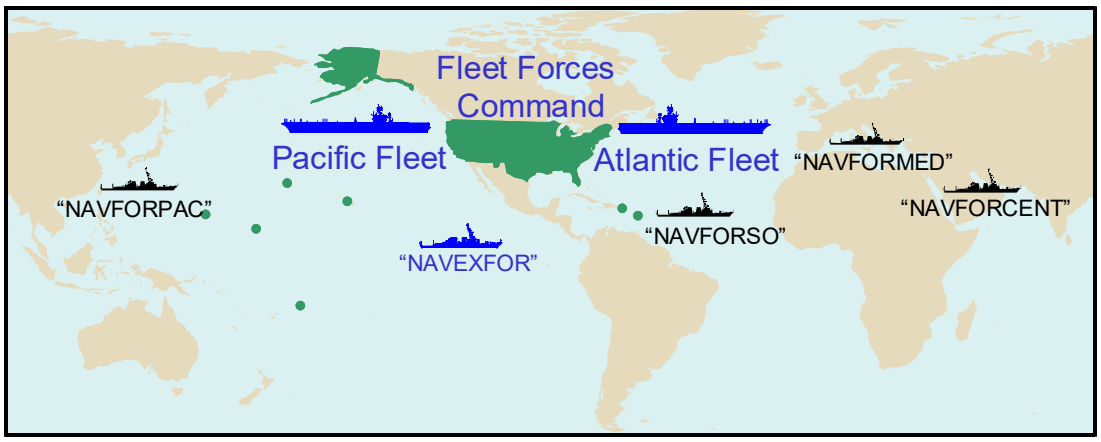
The model posits deploying U.S. Navy warships on extended round-the-world cruises to show the flag and ensure freedom of the seas.

Depending on the size of the force packages used, the potential immediate missions of these squadrons or fleets are all-inclusive. The lack of "deployment hubs" and a predictable routine would enhance force protection and create uncertainties in the minds of potential adversaries.

As with other forward deployed forces, cruising forces can periodically remind others of the existence, power and range of the U.S. Navy. They can participate in joint and combined operations, as well. Some could be home-ported overseas.

On the other hand, the intermittent nature of the deployments could signal a lack of American constancy and purpose. The long ocean transits of global cruises would reduce the amount of time available for the cruising ships to conduct engagement activities and forward presence operations. The ships would need to be supported en route by an underway replenishment force. And the lack of routine could complicate ship and personnel scheduling, especially for training and maintenance.

Model V: Separate tailored fleets: Experiment in strength at home, but do some forward MOOTW



This model is derived from the deployment strategies of the Navy from 1914-17, 1919 to 1937, and 1945 to 1947. [799]

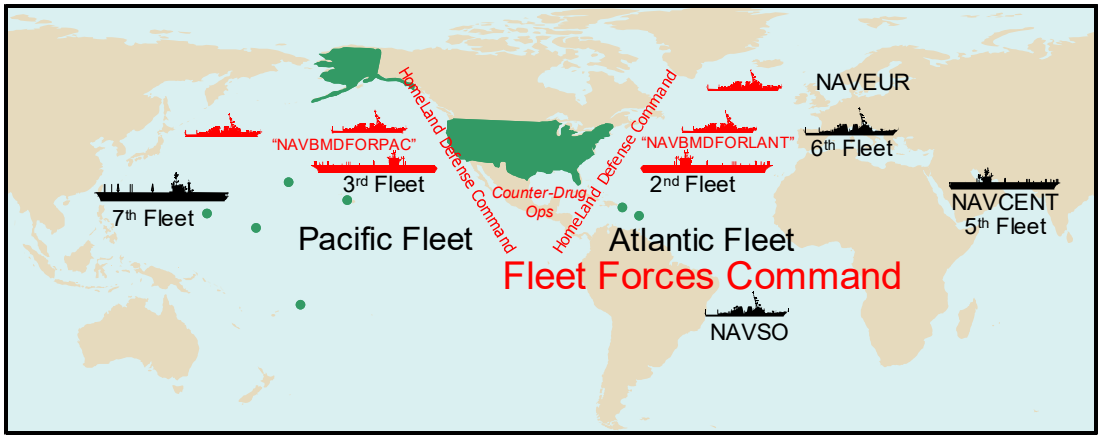
The model posits a few small squadrons operating forward in various areas around the world, as well as one or two ready battle fleets based in the United States on one or both coasts. When required by national command authorities, the forward elements can fall back In the face of a clear danger, and the rear battle fleets can surge forward—all or in part—to reinforce the forward elements.

There is a clear division of labor between the forward squadrons and the home-based fleets. The forward elements show the flag and conduct various types of military operations other than war (MOOTW). The home-based forces handle future potential contingencies and combat missions, and experimentation. The two elements have different types of ships and aircraft assigned, and they exercise, train and experiment differently.

The forward forces can reassure friends and allies and intimidate potential weak adversaries. They can enable and participate in joint and combined operations. Being small force packages, a large percentage of them are likely to be able to be home-ported overseas. The rear forces—with little requirement to train forward forces—are free to focus on honing combat operations and skills, and to experiment widely.

On the other hand, the rear forces are not routinely visible to overseas allies, friends, neutrals or potential adversaries. And it takes time for them to get where they need to go, especially if they need to go to the Arabian Sea. The forward forces, lacking powerful combat retaliatory punch, may take unacceptable losses if attacked. And all these forces require a mix of forward and rear land and sea basing, plus an underway logistics force.

Model VI: Optimized for Homeland defense



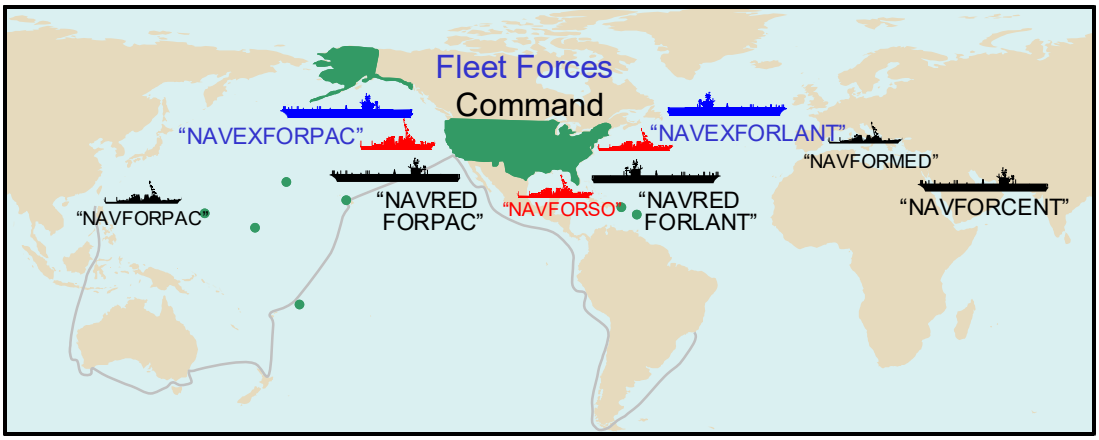
This model borrows elements from various previous deployment strategies of the Navy: 1803-15, 1841, 1941-43, 1956-65, and the immediate response to the terrorist attacks of September 11, 2001. [800]

The model posits two or three small squadrons operating forward in important areas around the world, as well as one or two combat-credible forward deployed battle fleets. The remainder of the force is deployed for direct homeland defense missions - usually but not exclusively close to America's coasts.

There is a clear division of labor between the forward and homeland defense elements. The forward elements show the flag and conduct various types of military operations other than war (MOOTW) and forward combat. The homeland defense forces conduct air defense, coastal patrol, counter-drug operations, and base and port security missions in the American littoral. They also provide ballistic missile defense—forward for boost-phase intercepts, as well as offshore for terminal phase intercepts. The two elements have different types of ships and aircraft assigned, and they exercise, train and experiment differently.

The forward forces can reassure some friends and allies and intimidate some potential adversaries. They can enable and participate in joint and combined operations. They are quite small, however, and therefore not very capable in more than one or two areas simultaneously, since a large percentage of the Navy's total force structure is devoted to homeland defense roles.

Model VII: Doing some of everything



This model illustrates that various elements from each of these models can be—and have been—combined to form a variety of composite models. Here we illustrate one such composite model—a model that tries to meet requirements for forward presence, operations other than war, crisis response, major wartime contingencies, experimentation, and homeland defense all at the same time.[801] There has been no historical example of this exact model, however, although the 1889-1905 and 1947-1950 periods come close.[802]

The model posits two or three small squadrons operating forward in important areas around the world, as well as a combat-credible forward deployed battle fleet. The remainder of the force is deployed near the American coasts for experimentation but also to be ready to surge forward quickly for war. Other naval forces are dedicated to the homeland defense mission and are tethered to the coasts accordingly.[803]

There is a clear division of labor between the forward, homeland defense, surge and experimentation elements. One forward element—probably in the Arabian Sea—is a full-up combat-credible fleet; others are small forces optimized only for showing the flag and military operations other than war (MOOTW). The homeland defense forces conduct air defense, coastal patrol, counter-drug operations, and base and port security missions in the American littoral. They also provide ballistic missile defense—forward for boost-phase intercepts as well as offshore for terminal phase intercepts. The experimentation force has some of the Navy's latest and most powerful units attached, while the surge force has powerful ready forces assigned. The elements all have different types of ships and aircraft assigned, and they operate, exercise, train and experiment differently.

By definition, no one of the elements of this model has a preponderance of the Navy's force structure assigned. The Navy is trying to deploy many ways simultaneously, and is optimized for variety of deployment types, not for any one type.[804]

Choosing from among the models

Deciding the correct strategy for deploying the fleet in the 21st century is—or should be—based on judgment and analysis, not habit.

Continuation of the combat-credible forward presence model for another decade or longer may well be the correct choice.

We believe that this choice can be made more confidently if it also takes the historical record into account.

Accordingly, we have presented a brief survey of U.S. Navy deployment strategy; we have analyzed the data contained in that survey; and we have showed an example of how that data might be used.

In conclusion, we hope that we have enabled decision-makers to:

- Better understand the factors that drive determination of a deployment strategy, especially:
  - The international environment
  - The domestic environment and strategic outlook
  - Technological innovation
- Better appreciate the range of alternatives open to them, beyond the post-World War II Cold War combat-credible forward presence model
- Gain context and perspective

Aligning the chosen deployment strategy

Choosing a deployment strategy—even choosing to keep the current strategy—is only part of the decision-makers' and planners' problem. As we have seen, they should also keep that strategy aligned with the other manifestations of strategy.

The critical alignment problem that emerges from our historical analysis is the extent to which the deployment strategy of the Navy is aligned with its:

- Planned wartime employment strategy
- Actual peacetime employment strategy

That is, the Navy should:

- Determine the optimal deployment strategy to align with its planned wartime employment strategy

- Determine the optimal deployment strategy to align with its actual peacetime employment strategy
- To the extent that these optimal deployment strategies necessarily differ, determine ways to better align them, and to smooth transitions between them, through:
  - Innovative procurement and organizational strategies
  - Identifying acceptable levels of risk

The Navy's deployment strategy should also be aligned with its:

- Declaratory strategy
- Procurement strategy
- Organizational strategy

That is, the Navy should:

- Explain the rationale for its chosen deployment strategy in its public statements
- Procure its ships and aircraft, and train its personnel, so that they are optimized to carry out the chosen deployment strategy
- Organize itself optimally to carry out the chosen deployment strategy

Strategy alignment is important to the Navy and to the nation. With a deployment strategy that correctly takes into account present and likely future world and domestic environments and the promise and limits of naval and related technologies, at an acceptable level of risk, the Navy will continue to serve the nation well as a critical element of the nation's armed forces.

IX. Answers to the questions

At the beginning of this paper we posed ten questions. In the body of the paper we have sought to answer each of them. Now we will recap the essence those answers.

What are the origins of the current U.S. Navy deployment strategy of combat-credible forward presence in three hubs?

The roots of current U.S. Navy deployment strategy can be traced back to the late 1940s, when Secretary of the Navy James Forrestal, Admirals Forrest Sherman and Arthur Radford, and others deployed what became the Sixth Fleet to the Mediterranean and later a reborn Seventh Fleet in the western Pacific, as combat-credible forward presence forces.

The efforts of Admiral Elmo Zumwalt and others at the beginning of the 1970s made the Seventh Fleet a forward-based as well as forward-deployed force. At the end of the 1970s, a third combat-credible forward presence "hub"—was created in the Arabian Sea. Meanwhile, precedents of intermittent forward presence were established and maintained in many other forward sea areas, and continued in America's "near abroad" in the Caribbean.

The combat-credible forward presence strategy has been the product of the domestic power and interests of the United States, the world environment within which the United States must live, and the human and technological capabilities of the U.S. Navy and other United States national security institutions.

What other deployment strategies has the U.S. Navy followed, and why?

Prior to the late 1940s, the Navy followed many other deployment strategy models, including periodic surges from the United States for diplomacy or combat, permanent forward stations scattered around the world, round-the-world cruising, and maintaining fleet combat readiness at home while positioning a few forward stations abroad.

As with the post-World War II combat-credible forward presence posture, each of these deployment strategies was the product of the domestic power and interests of the United States at the time; the world environment within which the United States had to live; and the human and technological capabilities of the U.S. Navy and other American national security institutions of the times.

How has deployment strategy been aligned with the planned and actual employment strategy, procurement strategy, and organizational strategy of the Navy?

Navy deployment strategies have co-existed with planned Navy employment strategies, actual employment strategies, procurement strategies and organizational strategies. Sometimes the alignment among these various strands of Navy strategy has been tight, and sometimes not.

There was often a disconnect between the planned employment strategy of the Navy for war, and its actual peacetime employment strategy. Often the Navy's deployment strategy aligned well with the latter, but was quickly reconfigured to align with the former when necessary, demonstrating the inherent flexibility of U.S. Navy forces.

In particular contrast to the current era is the period between the two world wars, when a Navy deployment strategy of recurrent large-scale exercises in home waters was well aligned with the Navy's planned wartime employment strategy, and undistracted by the pull of a different actual peacetime employment strategy.

How has U.S. Navy deployment strategy been integrated in joint and coalition strategy?

Examples of *coordinated* U.S. Navy operations with the U.S. Army and other armed services abound in history, as do examples of U.S. Navy participation in ad hoc coalitions operations. Army, Navy and other service officers also served on numerous joint boards together throughout their histories, and exercised frequently together starting in the 1880s.

That having been said, *integrated* joint operations seldom took place before World War II, and could not be considered central to how the U.S. Navy deployed until the 1990s. Integrated allied operations, on the other hand, became quite common for the U.S. Navy ever since the creation of the Cold War alliance systems in the early 1950s.

What relationship, if any, has there been between U.S. Navy deployment strategy and innovation?

There was no period in the history of U.S. Navy deployment strategy when innovation was not occurring in the Navy.

Periods with deployment strategies as disparate as those of the 1850s, 1890s, 1930s, 1950s and 1990s all saw enormous changes and great innovation in the fleet.

What has been the place of homeland defense in U.S. Navy deployment strategy?

Homeland defense has seldom attracted the Navy, and seldom been required to. The Navy's posture since its earliest days has normally been forward, or trying to get forward.

This has in part been due to an often low threat level at or near home, a normal Navy strategy of countering threats forward, and the existence of numerous other U.S. armed forces—especially the Army and Coast Guard—with homeland defense interests and responsibilities.

What has been the place of sea basing in U.S. Navy deployment strategy?

The U.S. Navy has always been employed for power projection ashore as well as sea control. Coupled with a normal deployment strategy of forward operations, this employment strategy has always required sea bases for naval fires, strike aviation, logistics, surveillance and command and control.

Sea basing reached its apotheosis in the U.S. Navy during the last year of World War II in the western Pacific, when huge carrier, amphibious, naval gunfire support, and mobile logistics forces provided a sea base to help overwhelm Japan. Since that time, the Navy has deployed a whole range of technologically advanced sea-based platforms.

Is the U.S. Navy's deployment strategy on the verge of transformation?

A major transformation of the Navy's deployment strategy does not appear to be on the horizon.

There have not been recent or contemporary changes in the three important variables—domestic interests, international environment, and naval capabilities—revolutionary enough to change U.S. Navy deployment strategy on the scale of the truly transformational changes occurring at the beginning of the 20th century or the end of World War II. Nor do such changes appear likely in the near future. Some variant of combat-credible forward presence seems to be optimal for the United States and its Navy for the foreseeable future.

This does not mean that the Navy cannot or should not change, or that those changes—on operational, tactical, platform, or force package levels—will not be transformational. But it does mean that transformation of the Navy's overall deployment strategy—which is its central organizing concept as an institution—is not likely to change soon.

How can the record of Navy deployment strategies from the past be used to illuminate choices about changing the Navy's deployment strategy in the future?

A variety of possible alternative future models of U.S. Navy deployment strategy can be derived from an examination of the record of the Navy's past deployment strategy. We have done so, by showing how past models can be updated to fit current forces. On balance, however, little benefit to transforming the current deployment strategy.

What other observations and conclusions can be drawn from analyzing the U.S. Navy deployment strategy record?

We have drawn many. Chief among them are that the U.S. Navy has been, and will probably remain, an ever-changing and highly operational force, with a bias toward forward deployment, an understanding of the requirements for sea basing, and a never-ending capacity to experiment and to absorb innovation rapidly.

X. Future study and analysis

Sea Changes has used the U.S. Navy's historical experience as regards its evolving deployment strategy to illuminate a series of issue areas facing Navy decision-makers and planners at the beginning of the 21st century.

The analysis it presents and the conclusions it has drawn are useful, but in many areas they only scratch the surface. Companion studies are consequently under way at the CNA Corporation's Center for Strategic Studies (CNAC/CSS), as noted earlier, to develop the history of certain issue areas more fully, notably "The Navy and Homeland Defense," and "The Navy and Jointness."

CNAC/CSS is not the only entity capable of conducting such studies. We hope that the data, analyses, and extensive bibliographic end-notes that we have presented here will form the basis for further applied historical analyses of use to Navy and joint decision-makers and planners, both at CNAC/CSS and elsewhere, in accordance with the recommendations of the1999 study for the Under Secretary of the Navy on the Navy's utilization of its history, and the example we have tried to set in *Sea Changes*.[805]

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At CNA

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Endnotes

Introduction

[1] For the initial statement of the U.S. Navy's 2002 operational vision, see Admiral Vern Clark, "'SEA POWER 21: Operational Concepts for a New Era," remarks as delivered at the Current Strategy Forum (Newport RI: Naval War College, June 12, 2002)
[2] Secretary of the Navy Gordon England, Chief of Naval Operations Admiral Vern Clark, and Commandant of the Marine Corps General James L. Jones, *Naval Transformation Roadmap: Power and Access . . .From the Sea* (Washington DC: Department of the Navy, July 17, 2002).
[3] In 1999, a Report of the Secretary of the Navy's Advisory Subcommittee (SNAS) on Naval History criticized the Navy's lack of use of its own history. As a result, the Under Secretary of the Navy commissioned an analysis of the status of the Navy's use of its history. That analysis, delivered the following year, was *History and Heritage in the U.S. Navy* (Rockville MD: History Associates Inc., October 16, 2000). For a discussion, see Vice Admiral Robert F. Dunn (Retired), *Shipmate* 65 (May 2002), 16.
[4] For a companion applied naval history effort that focused principally on the origins of the U.S. Navy's employment strategy regarding smaller-scale contingencies (SSCs) and military operations other than war (MOOTW), see Peter M. Swartz and E. D. McGrady, *A Deep Legacy: Smaller-Scale Contingencies and the Forces that Shape the Navy*, CRM 98-95.10 (Alexandria VA: Center for Naval Analyses, December 1998). Navy participation in SSCs and MOOTW was an important Navy issue area during the 1990s. For other recent examples of applied naval history, see Carter A. Malkasian's superb *Charting the Pathway to OMFTS: A Historical Assessment of Amphibious Operations from 1941 to the Present*, CRM D0006297.A2/Final (Alexandria VA: Center for Naval Analyses, July 2002); and Peter M. Swartz, "Classic Roles and Future Challenges: The Navy After Next," and Edward Rhodes, "' . . . From the Sea' and Back Again: Naval Power in National Strategy in the Second American Century," in *Strategic Transformation and Naval Power in the 21st Century*, eds. Pelham G. Boyer and Robert S. Wood, (Newport RI: Naval War College Press, 1998), 273-305 and 307-353.
[5] Further applied history studies are also planned, especially regarding the Navy and homeland defense, and the Navy and jointness.
[6] The opening paragraph of the Navy's program guide for 2002 states: "Forward-stationed, combat-credible naval expeditionary forces are vitally important to shaping the global security environment, assuring access to overseas regions, and permitting timely and frequently the initial crisis response - anytime, anywhere - from the sea." See *Vision . . . Presence . . . Power: A Guide to U.S. Navy Programs* (Washington DC: Department of the Navy, 2002), 2.
[7] For recent examples of proposed alternative Navy deployment strategies, see Colonel Robert Work USMC (Retired), *Naval Transformation: Is Bigger Better?* (Washington DC: Center for Strategic and Budgetary Assessments, April 2002); and Daniel Goure, "The Tyranny of Forward Presence," *Naval War College Review* 54 (Summer 2001), 11-24.
[8] On military strategy and the sea through history, see *Seapower and Strategy*, Colin S. Gray and Roger W. Barnett, eds. (Annapolis MD: Naval Institute Press, 1989).

[9] Our list of strategy types is derived from a number of analyses that seek to break down strategic nuclear weapons policies and strategies by type, including Paul H. Nitze, "Atoms, Strategy and Policy," *Foreign Affairs*, 34 (January 1956), 187-188; Desmond Ball, "U.S. Strategic Forces: How Would they be Used?," *International Security*, 7 (Winter 1982/1983), 32-33; and David Alan Rosenberg, "U.S. Nuclear Strategy: Theory and Practice," *Bulletin of the Atomic Scientists* (March 1987), 20. For a more recent example, see Thompson, "Rethinking the Unthinkable," *Washington Post Magazine* (July 28, 2002), 26-7.

[10] Our approach is based on that of John W. Kingdon in *Agendas, Alternatives and Public Policies*, 2nd edn. (New York: Harper Collins College Publishers, 1995). Kingdon noted that various streams - problems, policies, and politics - flowed through and around the government largely independent of one another,, and that big policy changes occurred when the streams joined. The same, this author asserts, is often true of the various types of strategies in the national security area. Kingdon's analysis was itself adapted from Michael D. Cohen, James G. March, and Johan P. Olsen, "A Garbage Can Model of Organizational Choice," *Administrative Science Quarterly* 17 (March 1972), 1-25. For an application of this approach to the field of foreign policy, see Philip Zelikow, "Foreign Policy Engineering: From Theory to Practice and Back Again," *International Security* 18 (Spring 1994), 143-71. For earlier attempts to apply the Garbage Can Model to naval decision-making, especially at the operational and tactical levels, see the chapters by Captain Wayne P. Hughes, Jr. (Retired) and Admirals Thomas B. Hayward, William H. Rowden, Joseph Metcalf III, and Harry D. Train II (Retired), in *Ambiguity and Command: Organizational Perspectives on Military Decision-Making*, eds. James G. March and Roger Weissinger-Baylon (Marshfield MA: Pitman Publishing Inc., 1986), 247-308.

[11] In intent and design, the approach taken in *Sea Changes* is derived from that of Colin McEvedy in his series of historical atlases. See especially *The Penguin Atlas of North American History* (London: Penguin Books, 1988); and *The Penguin Historical Atlas of the Pacific* (London: Penguin Books, 1998.

[12] For recent comprehensive and detailed histories of the U.S. Navy, see Kenneth J. Hagan, *This People's Navy: The Making of American Seapower* (New York: The Free Press, 1991); Robert W. Love, Jr., *History of the U.S. Navy*, vols. 1 &2 (Harrisburg PA: Stackpole Books, 1992); George W. Baer, *One Hundred Years of Sea Power: The US Navy: 1890-1990* (Palo Alto CA: Stanford University Press, 1994); Craig L. Symonds, *Historical Atlas of the U.S. Navy* (Annapolis MD: Naval Institute Press, 1995); Benjamin W. Labaree et al., *America and the Sea: A Maritime History* (Mystic CT: Mystic Seaport, 1998); and Jack Sweetman, *American Naval History: An Illustrated Chronology of the U.S. Navy and Marine Corps, 1775-Present*, 3rd edn. (Annapolis MD: Naval Institute Press, 2002). Still important, although not strictly a naval history, is Robert Greenhalgh Albion and Jennie Barnes Pope, *Sea Lanes in Wartime: The American Experience, 1775-1945*, 2nd edn., enlarged (Hamden CT: Archon Books: 1968). On the U.S. Marine Corps, much of the history of which is part of the U.S. Navy story, see Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps* (revised and expanded edn.), (New York: The Free Press, 1991).

[13] This parsing of the types of history is borrowed from John A. Lynn, "Reflections on the History and Theory of Military Innovation and Diffusion", in Colin Elman and Miriam Fendius Elman (eds), *Bridges and Boundaries: Historians, Political Scientists, and the Study of International Relations* (Cambridge MA: The MIT Press, 2001), 359-382. See also Congressman Ike Skelton, "Whispers of Warriors: The Importance of History to the Military Professional," *Naval War College Review* 53 (Summer 2000), 7-20; and BGen Paul K. Van Riper USMC, "The Use of Military History In the Professional Education of Officers", in *Selected Papers from the 1992 (59th Annual) Meeting of the Society for Military History*, ed. Donald F. Bittner (Quantico VA: US Marine Corps Command and Staff College, May 1994), 33-65. For an example of a recent naval history intended to inspire as well as instruct, see John F. Lehman, Jr., *On Seas of Glory: Heroic Men, Great Ships, and Epic Battles of the American Navy* (New York: The Free Press, 2001).

[14] On the development of naval tactics and tactical doctrine, see Captain Wayne Hughes (Retired), *Fleet Tactics and Coastal Combat*, 2nd edn. (Annapolis MD: Naval Institute Press, 2000); Rear Admiral S.S. Robison, (Retired) and Mary L. Robison, *A History of Naval Tactics from 1530 to 1930* (Annapolis MD:

The United States Naval Institute, 1942); and James J. Tritten and Stephen J. Cimbala, eds., *Navy Doctrine in Comparative Perspective* (forthcoming). On the development of naval technology, see *Naval Engineering and American Seapower*, eds. Rear Admiral Randolph W. King (Retired) et al., (Baltimore MD: Nautical and Aviation Publishing Company of America, 1989); Bernard Brodie, *Sea Power in the Machine Age* (Princeton NJ: Princeton University Press, 1941); Norman Friedman, *US Naval Weapons: Every Gun, Missile, Mine and Torpedo Used by the US Navy from 1883 to the Present Day* (Annapolis MD: Naval Institute Press, 1982); Karl Lautenschlager, *Technology and the Evolution of Naval Warfare* (Washington DC: National Academy Press, 1984); Albert B. Christman, *Naval Innovators, 1776-1900* (Dahlgren VA: Naval Surface Warfare Center, August 1989); and William D. O'Neil, "Technology and Naval War," (Alexandria VA: Center for Naval Analyses, 1981) reprinted 2000, 6-14. Studies of innovation in the Navy include Vincent Davis, *The Politics of Innovation: Patterns in Navy Cases* (Denver CO: University of Denver, 1967); Captain Ronald James Kurth, "The Politics of Technological Innovation in the United States Navy," (Ph.D. diss. Harvard University, June 1970); Captain Bradd C. Hayes and Commander Douglas V. Smith, eds., *The Politics of Naval Innovation* (Newport RI: U.S. Naval War College, 1994); and Terry Clifton Pierce, "Disguising Innovation," (Ph.D. diss.: Harvard University, May 2001), 255-271.

[15] On U.S. Navy combined operations with other navies, see Appendix B in Michael Johnson, Peter Swartz and Patrick Roth, *Doctrine for Partnership: A Framework for U.S. Multinational Naval Doctrine*, CRM 95-202 (Alexandria VA: Center for Naval Analyses, March 1996).

[16] Some academic historians will rightly carp that a work dependent on secondary literature is only as good as whatever book it happens to be citing. The choice of secondary works for this analysis was done carefully, however, and with this critique in mind. Misuse, misunderstanding and blind acceptance of secondary sources has hopefully been avoided. This paper seeks to re-interpret naval history, not to unearth new data, and its principal intended audience consists of naval officers and other national security planners and analysts, not academic historians. Some original research was done, however, to fill in blanks in the secondary literature, in order to develop a consistent, coherent and unbroken narrative. On this issue, see Michael A. Palmer's review of Michael T. Isenberg's *Shield of the Republic: The United States Navy In an Era of Cold War and Violent Peace, Volume I, 1945-1962* (New York: St. Martin's Press, 1993), in *Journal of Military History*, 58 (July 1994), 555-556. See also Eric Grove's similar review in the U.S. Naval Institute *Proceedings,* 68 (April 1994), 116-117; and David Alan Rosenberg's in *The New York Times Book Review (*December 19, 1993), 22.

[17] An approach somewhat similar to this one, however, was taken in Michael A. Palmer, "The Navy,", in *Encyclopedia of the American Military, Volume I*, ed. John E. Jessup (New York: Charles Scribner's Sons, 1994)

[18] All U.S. Navy ship tabulations used in this paper from 1886 onward are taken from *U.S. Navy Active Ship Force Levels, 1886-2002* (Washington DC: Department of the Navy, Naval Historical Center, 24 January 2002), on-line at http://www.history.navy.mil). For consistent historical comparison, the authors of that document included Naval Reserve Force (NRF) and Naval Fleet Auxiliary Force (NFAF) ships, and Military Sealift Command (MSC) fleet support ships in their current and recent active numbers, believing their totals would otherwise be historically inconsistent, and comparisons would be skewed. Because this paper's use of ship counts is largely for comparative purposes, we have adopted their approach. Using their counting method, there were 337 active ships as of November 16, 2001. Alternative ship counting methods are discussed later in this paper. For analyses of ship-counting methodologies and the many problems inherent in them, see David T. Burbach, Marc DeVore, Harvey M. Sapolsky and Stephen Van Evera, "Weighing the US Navy," *Defense Analysis*, 17, No.3 (2001), 259-266; Harold J. Kearsley, "Constructing a Naval Hierarchy," chap. in *Maritime Power and the Twenty-First Century* (Aldershot (UK): Dartmouth, 1992), 176-186; Ken Booth, "Naval Capabilities," chap. in *Navies and Foreign Policy* (New York: Holmes and Meier, 1979), 167-191; and Admiral Stansfield Turner, "The Naval Balance: Not Just a Numbers Game," *Foreign Affairs* 55 (January 1977), 339-354. For a consistent and authoritative set of numbers comparing the total number of ships, guns, and

personnel in the U.S. Navy for each year from 1816 through 1874, see Commodore George Preble, *Appendix to Merchant Vessels of the United States: A Complete List of the Vessels of the United States Navy, From 1797 to 1874* (Washington DC: Government Printing Office, 1874), 3-5. The utility of Preble's counts can be limited however, since he listed all vessels on the Navy's *Official Register* each year, which included many of no operational value. For a useful compilation of ships in the eighteenth-century Navy and changes in the fleet every five years since then until 1940, see Fletcher Pratt, *The Navy: A History: The Story of a Service in Action* (Garden City, New York: 1941), 13-14, and 413-456. Pratt generally ignores amphibious, auxiliary, and transport vessels, however.

[19] For individual histories of U.S. Navy forward presence through 2001 in each of the three forward fleet hub areas, plus the waters around Latin America, see David F. Winkler, "From Ticonderoga to Fifth Fleet;" Sarandis Papadopoulos, "From the Barbary Wars to Kosovo: Significant Aspects of the U.S. Navy Forward Presence in Europe and the Mediterranean;" Edward Marolda, "The Far Eastern Presence of the U.S. Navy;" and Patrick H. Roth, "From the Brazil Squadron to USNAVSO: Significant Aspects of U.S. Navy Forward Presence in Latin American Waters" (unpublished papers prepared for the U.S. Navy Forward Presence Bicentennial Symposium, Alexandria VA, The CNA Corporation, June 21, 2001). On Latin America, see also Patrick H. Roth, "The U.S. Navy and Marine Corps in Latin America: 1776-1994, An Interpretive Chronology" (unpublished manuscript, 1994)

[20] For service budget comparisons, see *Air Force Magazine* 85 (May 2002), 51.

U.S. Navy deployment strategies: 1775-2002

1775-1785 deployment strategy

[21] There is some controversy regarding the respective establishment dates - and therefore the formal order of precedence - of today's U.S. Navy and U.S. Marine Corps. The Continental Navy was created by the Continental Congress first, in October 1775, followed by the Continental Marines in November of that year. Both services went into abeyance - as we will see - following the War for Independence. The re-establishment of the U.S. Navy preceded the re-establishment of the U.S. Marine Corps in the 1790s. Nevertheless, during the following decades, the Navy often dated its establishment from the 1790s, while the Marine Corps consistently dated itself from the earliest Continental Marines. Accordingly, the Marine Corps was granted precedence over the Navy in 1921. In 1972, Admiral Elmo R. Zumwalt, Chief of Naval Operations, authorized 13 October - the date the Continental Congress enacted the first naval legislation in 1775 - as the Navy Birthday. The marines still claim precedence over the Navy, however, as of this writing. See "Precedence of the U.S. Navy and the Marine Corps," (Washington DC: Department of the Navy, Naval Historical Center, 4 December 2001), website http://www.history.navy.mil/birthday2.htm

[22] In 1769, for example, the colonies had produced 389 vessels, 276 of them schooners or sloops. On the eve of the War for Independence, the merchant marine of the colonies was over 450,0000 tons, all built in New England. In addition, American yards had built an increasing proportion of the British merchant fleet - 30 % in 1774. See K. Jack Bauer, *A Maritime History of the United States: The Role of America's Seas and Waterways* (Columbia SC: University of South Carolina Press, 1988), 33; and Angus Maddison, *The World Economy: A Millennial Perspective* (Paris: Development Centre of the Organisation for Economic Co-operation and Development, 2001), 107.

[23] On American naval efforts during the War for Independence, see Raymond G. O'Connor, *Origins of the American Navy: Sea Power in the Colonies and the New Nation* (Lanham MD: University Press of America, 1994); James C. Bradford, "The Navies of the American Revolution," in *In Peace and War: Interpretations of American Naval History, 1775-1984*, 2nd edn., ed. Kenneth J. Hagan (Westport CT: Greenwood Press, 1984), 3-26; and William M. Fowler, Jr., *Rebels Under Sail: The American Navy during the Revolution* (New York: Charles Scribner's Sons, 1976).

[24] There were also a number of State Marine Corps, and "private marines" served on board privateers. All these entities were in place, at least embryonically, by the end of 1775, the first year of the war. In October, with the authorization of a Continental Navy, the Congress created a naval committee to oversee ship construction. This was superseded by a Marine Committee in December 1776, a Board of Admiralty in 1779, and an Agent of Marine in 1781. For the history of the early organizational strategy of the Navy, see Charles O. Paullin, *Paullin's History of Naval Administration, 1775-1911: A Collection of Articles from the U.S. Naval Institute Proceedings* (Annapolis MD: Naval Institute Press, 1968); and Robert Greenhalgh Albion, *Makers of Naval Policy, 1798-1947* (Annapolis MD: Naval Institute Press, 1980). On the "valiant, but disappointing" efforts of the state navies, see William S. Dudley, "State Navies in the American Revolution," (Washington DC: Paper delivered to the American Revolution Round Table, 4 January 1984).

[25] In the rebel cause, some 762 privateers captured or destroyed 600 British vessels worth and estimated $18 million. On American privateering during the War for Independence, see Janice E. Thompson, *Mercenaries, Pirates and Sovereigns: State-Building and Extraterritorial Violence in Early Modern Europe* (Princeton NJ: Princeton University Press, 1994), 25-26. See also Andrew Gibson and Arthur Donovan, *The Abandoned Ocean: A History of United States Maritime Policy* (Columbia SC: University of South Carolina Press, 2000), 19

[26] The Marines during the War of Independence had little formal status within the military. The senior Marine Corps officer, Samuel Nicholas, started the war as a captain and finished as a major. No officer in the Navy held a rank higher than captain, although squadron commanders received the honorary title of Commodore. The Continental Army, on the other hand, was headed by a full general (Washington) and had several officers holding the ranks of major general and brigadier general. On the development of the rank structure of the services, especially its senior ranks, see Raymond Oliver, *Why is the Colonel Called "Kernal"? The Origin of the Ranks and Rank Insignia Now Used by the United States Armed Forces* (McClellan Air Force Base CA: Office of History, Sacramento Air Logistics Center, August 1983).

[27] General George Washington created his own naval forces in 1775 at Boston to raid British supply ships. Brigadier General Benedict Arnold deployed a squadron on Lake Champlain in 1776 that, although defeated at the Battle of Valcour Island, delayed the British advance from Canada into New York and thereby enabled the great American victory on the ground at Saratoga in 1777. See John P. Milsop, "'A Strife of Pygmies' The Battle of Valcour Island," *MHQ* 14 (Winter 2002), 87-94.

[28] The population of the Thirteen Colonies was only a bit more than that of, say Portugal or the Netherlands. While the colonies together shared less than one percent of the world's manufacturing output, Britain's share was more than two percent, and France's more than four percent. Nevertheless, by some accounts, the emergent nation produced more pig iron in 1776 than the whole of Great Britain. For comparisons of pig iron production and world manufacturing output, see Paul Kennedy, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Random House, 1987), 94 and 149.

[29] For comparative population statistics, see Colin McEvedy and Richard Jones, *Atlas of World Population History* (New York: Penguin Books, 1978).

[30] For a debate on the effectiveness of the Continental Navy's deployments and operations, see Jonathan R. Dull, "Was the Continental Navy a Mistake?" *The American Neptune*, 45 (1984), 167-9; and William S. Dudley and Michael A. Palmer, "No Mistake About it: A Response to Jonathan R. Dull," *The American Neptune*, 45 (1985), 244-8.

[31] Our number of 50 ships in the Continental Navy is from Donald L. Canney, "Historic Background and the International Scene", chap. in *Lincoln's Navy: The Ships, Men and Organization, 1861-1865* (Annapolis MD: Naval Institute Press, 1997), 2. The U.S. Department of the Navy's Naval Historical Center lists 57 vessels of the Continental Navy on its web site (http://www.history.navy.mil/wars/revwar/contships.htm). For a listing of Continental Navy warships, see Pratt, *The Navy*, 13-14 and 413-415.
[32] Ship type figures are from ibid., Naval Historical Center website.
[33] Personnel figures are from "Personnel Strength of the U.S. Navy: 1775 to Present", (Washington DC: Department of the Navy, Naval Historical Center, 23 October 1997) on line at http://www.history.navy.mil/faqs/faq65-1.htm
[34] In each year of the war, there were far more privateers deployed than Continental Navy warships, mounting far more guns and taking far more British prizes. On the American privateers during the War for Independence, see Reuben Elmore Stivers, *Privateers & Volunteers: The Men and Women of our Reserve Naval Forces: 1766 to 1866* (Annapolis MD: Naval Institute Press, 1975), 28-43.
[35] This comparative ranking of navies is from Jan Glete, *Navies and Nations: Warships, Navies and State-Building in Europe and America, 1500-1860*, vol. 1 (Stockholm: Almqvist & Wiksell International, 1993), 311. Glete puts the Continental Navy of 1780 on a par with Naples, somewhere below Malta and Venice, but somewhere above Tuscany, Sardinia and the Papal States.
19 Frank Uhlig, Jr.'s *How Navies Fight* (Annapolis MD: Naval Institute Press, 1994) is the best analysis of the wartime missions of the Navy over time. He neatly summarizes his findings in a chart on pages 416-417.
[37] Frank Uhlig's characterization of the Caribbean as America's "Near Abroad" - to borrow a late-twentieth-century Russian term - useful here.
[38] The Continental Navy - with the Massachusetts Navy and a force of privateers - was no more successful in its major amphibious operation of the war - the disastrous 1779 Penobscot Expedition to Maine. See George E. Buker, *The Penobscot Expedition: Commodore Saltonstall and the Massachusetts Conspiracy of 1779* (Annapolis MD: Naval Institute Press, 2002).
[39] From forward bases in France, American naval commanders Lambert Wickes and Gustavus Conyngham raided enemy shipping in British waters in 1777. Conyngham used El Ferrol in Spain as a forward base in 1778.
[40] In the end, John Paul Jones proved more successful forward at sea than in projecting power ashore: During his 1779 attempt to intercept a British convoy from the Baltic, his far forward battle in *Bonhomme Richard* against the Royal Navy frigate *Serapis*, within sight of Flamborough Head in Yorkshire, became a founding legend of the U.S. Navy. On Jones's forward offensive strategy and his raids in England, see Dennis Conrad, "John Paul Jones, the *Ranger* and the Value of the Continental Navy," *Sea History*, 100 (Spring 2002), 9-13; Gregory P. Ripple, "'Never So Critical a Situation as the Present': English Provincial Reaction to John Paul Jones, 1778-1779," in *New Interpretations in Naval History: Selected Papers from the Thirteenth Naval History Symposium*, William M. McBride, ed. (Annapolis MD: Naval Institute Press, 1998), 47-58; Stephen Webbe, ""Revenge Raid on Whitehaven," *MHQ*, 12 (Spring 2000), 20-27; and idem, "'I Wage No War with the Fair'," *MHQ*, 14 (Spring 2002), 42-47. Jones's operations in the North and Irish Seas are well laid out in Symonds, *Historical Atlas of the U.S. Navy*, 14-15.
[41] Larger navies of the period - like the British, French, Spanish and Dutch - possessed ships of the line and developed tactics to employ them in fleets against adversaries. Frigates and smaller warships (the main fighting strength of the Continental Navy) did not form part of the battle line and had no settled rules for fighting, other than to strive for the weather-gauge, rake a disabled enemy or one "in irons," or to board, if gunfire did not bring surrender. Captains of American warships, for whom single ship actions were the rule, excelled in ship-handling, in and out of action, but not multi-ship tactics. The largest American effort to deploy a squadron of ships together - the Penobscot Expedition of 1779 - had ended in disaster. See Robison and Robison, "The American Navy of the Revolution," chap. in *A History of Naval*

Tactics, 380-97; and Howard I. Chapelle, *The History of the American Sailing Navy: The Ships and Their Development* (New York: Bonanza Books, 1949), 99-100.

1785-1798 deployment strategy

[42] The U.S. Army mustered a few hundred officers and men in 1789, growing to a few thousand by 1795. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, (Washington DC: Department of Defense, Washington Headquarters Services, Directorate for Information (DIOR), 2002), 42

[43] On the disappearance and revival of the Navy, see Elizabeth M. Nuxoll, "The Naval Movement of the Confederation Era," in *The Early Republic and the Sea: Essays on the Naval and Maritime History of the Early United States*, William S. Dudley and Michael J. Crawford, eds., (Washington DC: Brassey's, Inc., 2001), 3-33; Michael J. Crawford and Christine F. Hughes, *The Reestablishment of the Navy, 1787-1801: Historical Overview and Select Bibliography* (Washington DC: Department of the Navy, Naval Historical Center, 1995); G. Terry Sharrer, "The Search for a Naval Policy, 1783-1812," in *In Peace and War: Interpretations of American Naval History*, ed. Hagan, 27-45; and Marshall Smelser and Stephen T. Powers, "The Fleetless Nation, 1781-1798," in *American Secretaries of the Navy*, vol. 1, *1775-1913*, ed. Paolo E. Coletta (Annapolis MD: Naval Institute Press, 1980), 29-58.

[44] On the explosive growth of American merchant shipping from 1789 to 1800, see table in Gibson and Donovan, *Abandoned Ocean*, 25.

[45] On the early American merchant fleet and its deployments, see Bauer, *Maritime History of the United States*, 54-57.

[46] The Lighthouse Establishment was the very first American federal government agency. From 1852 to 1910 it was administered by a joint and interagency Lighthouse Board, consisting of two officers from the Army Corps of Engineers, two from the Navy, and two civilian scientists, with junior officers from the Army and Navy as secretaries. Lighthouses were subsequently used by the Navy for coastal defense purposes, especially during the Spanish- American War. In 1903, the Lighthouse Service became the model for the establishment of Naval Districts for coastal defense (and in the same year was shifted to a new Commerce Department). In 1939 it was incorporated into the U.S. Coast Guard. See Dennis L. Noble, *Lighthouses & Keepers: The U.S. Lighthouse Service and its Legacy* (Annapolis MD: Naval Institute Press, 1997).

[47] A good short history of the Coast Guard and its predecessor organizations is "An Evolving Coast Guard," chap. in *U.S. Coast Guard: America's Maritime Guardian* (Coast Guard Publication 1), Washington DC: U.S. Coast Guard, 1 January 2002), 15-36. For the early years, see Irving H. King, *George Washington's Coast Guard: Origins of the U.S. Revenue Cutter Service, 1789-1801* (Annapolis MD: Naval Institute Press, 1978); idem, *The Coast Guard Under Sail: The U.S. Revenue Cutter Service, 1789-1865*, (Annapolis MD: Naval Institute Press, 1989); and Stephen H. Evans, *The United States Coast Guard, 1790-1915: A Definitive History* (Annapolis MD: Naval Institute Press, 1949).

[48] On the policy debates of the period, see Craig L. Symonds, *Navalists and Antinavalists: The Naval Policy Debate In the United States, 1775-1827* (Newark DE: University of Delaware Press, 1980).

[49] For these events and the subsequent history of American coastal defense, see Robert S. Browning III, *Two if by Sea: The Development of American Coastal Defense Policy* (Westport CT: Greenwood Press, 1983), 7; and Emanuel Raymond Lewis, *Seacoast Fortifications of the United States: An Introductory History* (Annapolis MD: Naval Institute Press, 1993). On the role of the War Department in founding the Navy, see Michael Carter, "Secretary of War Henry Knox and the Birth of the U.S. Navy," (Unpublished paper presented at the Thirteenth Naval History Symposium, United States Naval Academy, Annapolis MD, October 2-4, 1997).

[50] President Adams signed the Act of Congress creating the Department of the Navy in April 1798. In June, Congress instructed U.S. warships to capture any French vessel found near the American coast preying on American commerce. Secretary of the Navy Stoddert took office in June, and in July the Congress authorized privateering against the French, and President Adams signed an act re-establishing a Marine Corps.
[51] The United States during this period continued to grow, although it was hardly yet in the same league as the major European powers. From 1798 to 1815 the population of the country grew from five to eight and a half million. Meanwhile, the population of France was over 29 million, of Britain over 16 million, and of Spain over 11 million. See *Historical Statistics of the United States*, 8; and McEvedy and Jones, *Atlas of World Population History*, 49, 57, 101.
[52] On the era, see Sharer, "The Search for a Naval Policy, 1783-1812," in *In Peace and War: Interpretations of American Naval History*, 27-45; and Christopher McKee, *A Gentlemanly and Honorable Profession: The Creation of the U.S. Naval Officer Corps, 1794-1815* (Annapolis MD: Naval Institute Press, 1991).
[53] Stoddert and his successors through 1815 managed and deployed the fleet single-handedly, with minimal help from others. There were no bureaus or assistant secretaries to assist. Throughout the Adams and Jefferson Administrations, the Navy routinely received a larger annual budget than the Army. See *Historical Statistics of the United States: Colonial Times to 1970*, Part 1 (Washington DC: U.S. Department of Commerce, Bureau of the Census, 1975), 1115.
[54] On the Quasi-War, see Michael A. Palmer, *Stoddert's War: Naval Operations During the Quasi-War with France, 1798-1801* (Columbia SC: University of South Carolina Press, 1987)
[55] On American force levels during the Quasi-War, see ibid. 24. Actually, President Adams commenced naval operations as soon as he could get an initial U.S. Navy ship to sea - the converted merchantman *Ganges* in May 1798. The 22 U.S. ships operational by the end of 1798 included three new frigates, several other converted merchantmen, and small Treasury Department Revenue Marine cutters pressed into naval service. The number for 1801 is from Canney, "Historic Background and the International Scene", chap. in *Lincoln's Navy*, 4. For a detailed running tabulation of U.S. Navy warships built, building, lost and captured during this era, see Pratt, *Our Navy*, 415-417. Personnel numbers are from *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 42.
[56] In 1799, the Congress authorized the President to transfer the Treasury Department's revenue cutters to the Navy for use in defense. The Quasi-War was the clearest instance in which the Revenue Marine (and its successor the Coast Guard) has been critical to the outcome of an American war. For a brief recounting of the extensive participation by the Revenue Marine and its successor, the U.S. Coast Guard, alongside or under the Navy, see Robert L. Scheina, *Coast Guard at War*, Commandant's Bulletin 4-87 (February 13, 1987). On the privateers, see Stivers, *Privateers and Volunteers*, 50.
[57] The French Navy was largely back at home in French ports, blockaded by the British.
[58] For a map depicting the Caribbean deployments during the Quasi-War, including the contributions of the Revenue Marine, see Symonds, *Historical Atlas of the U.S. Navy*, 26-7.
[59] On the Barbary states, their wars with the United States, and the precedents set during those wars for later U.S. Navy permanent forward presence in the Mediterranean, see William S. Dudley, "The Origins of the U.S. Navy's Mediterranean Squadron, 1783-1816," *International Journal of Naval History*, 1 (April 2002), on-line. See also Lincoln P. Paine, "'War is Better than Tribute'," *Naval History* 15 (June 2001) 20-5; James R. Sofka, "The Jeffersonian Idea of National Security: Commerce, the Atlantic Balance of Power, and the Barbary War, 1786-1805," *Diplomatic History*, 21 (Fall 1997), 519-544; James A. Field, Jr., "To the Shores of Tripoli,", chap. in *America and the Mediterranean World, 1776-*

1882 (Princeton NJ: Princeton University Press, 1969), 27-67; and Glenn Tucker, *Dawn Like Thunder: The Barbary Wars and the Birth of the U.S. Navy* (Indianapolis IN: The Bobbs-Merrill Company, Inc., 1963).

[60] Population comparisons are from McEvedy and Jones, *Atlas of World Population History*, 220-225.

[61] On the nature of the Barbary states and American attitudes toward them, see Robert J. Allison, "Sailing to Algiers: American Sailors Encounter the Muslim World," *The American Neptune*, 57 (Winter 1997), 5-17; and idem, *The Crescent Obscured: The United States and the Muslim World, 1776-1815* (New York: Oxford University Press, 1995). On valid and invalid analogies between the nineteenth century Barbary Wars and the twenty-first century War on Terrorism, see Michael J. Crawford, "The United States' War with Tripoli (1801-05) and the War on Terrorism (2001-)," (Washington DC: Department of the Navy, Naval Historical Center, February 26, 2002), on-line at Naval Historical Center website.

[62] During the war, an American-organized force - including seven Marines - took the Tripolitan town of Derna. Hence ". . . to the shores of Tripoli." During this period the U.S. Marines were organized by individual ship detachments and deployed as an integral element of the Navy. They never numbering more than a thousand, and usually only a few hundred. They served as ship and naval base security forces, manned ships' guns, and formed nuclei for naval landing parties. The Commandant of the Marine Corps during this period initially held the rank of major, then lieutenant colonel. It would remain a lieutenant colonel's job until 1834. Meanwhile, no U.S. Navy officers held a rank higher than that of captain, although squadron commanders received the honorary title of Commodore. The Army, by contrast, was headed by general officers. On the Commandant's position, see Albert A. Nofi, "The Commandants," chap. in *The Marine Corps Book of Lists* (Conshohocken PA: Combined Publishing, 1997), 141-143; and Kenneth W. Condit et al. *A Brief History of Headquarters Marine Corps Staff Organization* (Washington DC: Historical Division, Headquarters, U.S. Marine Corps, 1971), 2.

[63] The Administration and the Congress also cut way back on what was never a large active Army. In fact, in one year - 1805 - there were more officers and enlisted men (3191) serving in the Navy (not counting 578 Marines) than in the Army (2729). See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 42.

[64] Jefferson saw the gunboats as inexpensive complements not only to blue-water warships, but also to permanent fortifications, whose effectiveness he was unsure of. A new Army coastal fortification program, dubbed the "Second System", was begun in 1807. See Browning, *Two if by Sea*, 13-17 & 79. Many naval historians have traditionally regarded Jefferson's gunboat policy as a total failure, but more recent scholarship has been more nuanced. For a traditional view, see Harold and Margaret Sprout, *The Rise of American Naval Power, 1776-1918* (Princeton NJ: Princeton University Press, 1944), 58-83. For the more recent interpretations, see Gene A. Smith, "*For the Purposes of Defense": The Politics of the Jeffersonian Gunboat Program* (Newark DE: University of Delaware Press, 1995); Spencer C. Tucker, *The Jeffersonian Gunboat Navy* (Columbia SC: University of South Carolina Press, 1987); and idem, "The Jeffersonian Gunboats in Service, 1804-1825," *American Neptune*, 55 (Spring 1995), 97-110. For the distribution of the gunboats along the Atlantic Coast and at New Orleans at their height, in 1809, see Symonds, *Historical Atlas of the U.S. Navy*, 36-7.

[65] President Jefferson's very first Navy gunboats were deployed on revenue, quarantine, and anti-smuggling operations between Savannah and Charleston in 1804. Navy warships assisting the Revenue Marine deployed on anti-smuggling operations off the coast of Maine to enforce the Embargo of 1807. See Smith, *"For the Purposes of Defense"*, 94-95; Joshua M. Smith, "'So Far Distant from the Eye of Authority': The Embargo of 1807 and the U.S. Navy, 1807-1809", in *New Interpretations in Naval History: Selected Papers from the Twelfth Naval History Symposium* (Annapolis MD: Naval Institute Press, 1997), 123-138; and Robert W. Coakley, *The Role of Federal Military Forces in Domestic Disorders, 1789-1878* (Center of Military History, United States Army, 1988), 84-90. The Embargo Act was repealed in 1809, and most U.S. Navy vessels were laid up, including the gunboats.

[66] The Royal Navy was stopping American ships at sea to impress their seamen into its service. The most egregious and embarrassing of these encounters was a Royal Navy attack on the U.S. Navy frigate

Chesapeake in 1807. In 1811, the frigate *United States* fired in turn on HMS *Little Belt* off the Virginia Capes. On the deployment of American gunboats in response to the *Chesapeake* incident, see Frederick C. Leiner, "The Norfolk War Scare," *Naval History,* 7 (Summer 1993), 36-38.

[67] There was no *planned* employment strategy for the Navy prior to the War of 1812. See Canney, "Historic Background and the International Scene," chap. in *Lincoln's Navy*, 8. On the Madison Administration's hurriedly-planned initial naval employment strategy for the war, see Peter J. Kastor, "Toward 'the Maritime War Only': The Question of Naval Mobilization, 1811-1812," *Journal of Military History*, 61 (July 1997), 455-80. On the *actual* employment strategy of the Navy during the war, see Linda Maloney, "The War of 1812: What Role for Sea Power?" in *In Peace and War*, ed. Hagan, 46-62.

[68] Commodore John Rodgers was the exemplar of concentrating naval forces early in the war, but after his initial operations, it was never again attempted. For the track of his initial forward surge deployment, see Symonds, *Historical Atlas*, 42-3. For an analysis of the efficacy of the operation, see Jeff Seiken, "'To Strike a Blow in the World that Shall Resound through the Universe': American Naval Operations and Options at the Start of the War of 1812," in *New Interpretations in Naval History: Selected Papers from the Fourteenth Naval History Symposium*, Randy Carol Balano and Craig L. Symonds, eds., (Annapolis MD: Naval Institute Press, 2001), 131-146. See Symonds*, Navalists and Antinavalists,* 172-173; and ibid, *Historical Atlas of the U.S. Navy, 42*. On the forward raids of the U.S. Navy brig *Argus* - which cruised the English Channel and even raided up the River Shannon - and the frigate *President*, - which deployed as far as Norway's North Cape, see William S. Dudley, ed. *The Naval War of 1812: A Documentary History, vol. 2: 1813* (Washington DC: Naval Historical Center, 1992), 217 and 251-3. On the fleet tactical signal books written and possibly used by U.S. Navy captains during this period, see Robison and Robison, *A History of Naval Tactics*, 447-50 and 489-93. Even in the hey-day of single-ship actions, American naval commanders longed to command battle fleets, and thought about how they would employ them.

[69] The well-drilled Americans excelled at ship-to-ship combat, starting the war with an unbroken series of five single-ship victories that dismayed the Royal Navy and the British public. See Peter Padfield, *Guns at Sea* (New York: St. Martin's Press, 1974), 137-43.

[70] For a detailed running tabulation of U.S. Navy warships built, building, lost and captured during this era, see Pratt, *Our Navy*, 417-21. The Navy also started the war with some 63 gunboats, and finished it with some 240 small craft. Canney, "Historic Background and the International Scene", *Lincoln's Navy*, 6, 8.

[71] The comparison is derived from Glete, *Navies and Nations:* vol.2, 376; personnel numbers are from *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 42

[72]There was also a militia defense of Stonington, Connecticut, in the face of British blockade and bombardment, probably in retaliation for American undersea "torpedo" (mine and submersible) attacks on the blockading British fleet. See James Tertius De Kay, *The Battle of Stonington: Torpedoes, Submarines and Rockets in the War of 1812* (Annapolis MD: Naval Institute Press, 1990). On the war in the Chesapeake, see Christopher T. George, *Terror on the Chesapeake: The War of 1812 on the Bay* (Shippensburg PA: White Mane Books, 2000).

[73] Oliver Hazard Perry 's squadron defeated a British squadron on Lake Erie in 1813, enabling successful American ground operations against the British in Canada, under General William Henry Harrison. It was to Harrison that Perry wrote his famous message, "We have met the enemy and they are ours". A year later, Commodore Thomas Macdonough beat the British in the Battle of Lake Champlain, blocking an invasion from Canada. On Lake Ontario, however, the less aggressive Isaac Chauncey achieved no better than a stalemate with his British counterparts. A joint Army-Navy expedition to Lakes Superior and Huron captured enemy forts. There is a shelf-full of recent analyses of the joint campaigns on the lakes. See especially Barry Gough, *Fighting Sail on Lake Huron and Georgian Bay: The War of 1812 and its Aftermath* (Annapolis MD: Naval Institute Press, 2002); David Curtis Skaggs, *Thomas Macdonough: Master of Command in the Early U.S. Navy* (Annapolis MD: Naval Institute Press, 2002); Robert Malcomson, *Lords of the Lake: The Naval War on Lake Ontario, 1812-1814* (Annapolis MD:

Naval Institute Press, 2002); idem, *Warships of the Great Lakes: 1754-1834* (Annapolis MD: Naval Institute Press, 2001); David Curtis Skaggs and Gerald T. Altoff, *A Signal Victory: The Lake Erie Campaign, 1812-1813* (Annapolis MD: Naval Institute Press, 1997); and William S. Dudley, "Commodore Isaac Chauncey and U.S. Joint Operations on Lake Ontario, 1813-14," in *New Interpretations in Naval History: Selected Papers from the Eighth Naval History Symposium*, ed. William B. Cogar (Annapolis MD: Naval Institute Press, 1989), 139-155.

[74] Navy gunboats and Army fortifications together defended Norfolk - and the frigate *Constellation* sheltered there - in 1813. The frigate *Constitution* found similar protection from the Royal Navy at Marblehead, Massachusetts in 1814.

[75] Again, as in the War for Independence, the Americans deployed many more privateers than Navy warships, mounting many more guns, and taking or sinking many more prizes. On the privateers during the War of 1812, see Stivers, *Privateers & Volunteers*, 56-61, and 76-99.

[76] On the American naval and privateering operations in the Far East during the War of 1812 and their effect on British naval and commercial deployments, see Gordon K. Harrington, "The American Challenge to the English East India Company During the War of 1812," in *New Interpretations in Naval History: Selected Papers from the Tenth Naval History Symposium*, eds. Jack Sweetman et al. (Annapolis MD: Naval Institute Press, 1993. See also Christine F. Hughes, "Lewis Warrington and the USS *Peacock* in the Sunda Strait, June 1815," in *The Early Republic and the Sea*, Dudley and Crawford, eds., 115-122. For the track of the *Essex* deployment in 1812-14, see Symonds, *Historical Atlas*, 46-7.

[77] On joint operations at New Orleans (and earlier on the lakes), see R. Blake Dunnavent, "Broadsides and Brown Water: The U.S. Navy in Riverine Warfare During the War of 1812," *The American Neptune* 59, no. 3, (1999), 199-210; Thomas Fleming, "Old Hickory's Finest Hour," *MHQ* 13 (Winter 2001), 6-17; and Rear Admiral Robert Hanks, "'. . . The Ruinous Folly of a Navy'," in *America Spreads her Sails: U.S. Seapower in the 19th Century*, ed. Clayton R. Barrow, Jr., (Annapolis MD: Naval Institute Press, 1973), 2-20.

[78] For a recent analysis that concludes that the British blockade was far less effective than previously thought, see Wade G. Dudley, *Splintering the Wooden Wall: The British Blockade of the United States, 1812-1815* (Annapolis MD: Naval Institute Press, 2002).

[79] The squadron commander was Commodore William Bainbridge, and his was the first recorded attempt at tactical maneuvers by an American squadron. It would not really be replicated until much later in the century. See Robison and Robison, *History of Naval Tactics*, 523.

1815-1841 deployment strategy

[80] On the transition between the two eras, see the last two chapters of Symonds, *Navalists and Antinavalists*, 194-237. See also David F. Long, "The Navy under the Board of Navy Commissioners, 1815-1842," in *In Peace and War*, ed. Hagan, 63-78.

[81] On the American foreign policy drivers that led to nineteenth century Navy deployment and actual employment strategies, see Max Boot, *The Savage Wars of Peace: Small Wars and the Rise of American Power* (New York: Basic Books, 2002) ; Walter Russell Mead, "The American Foreign Policy Legacy," *Foreign Affairs*, 81 (January/February 2002), 163-176; and idem, *Special Providence: American Foreign Policy and How it Changed the World*, (New York: Century Foundation, 2001). Navy-Marine Corps landings are chronicled in Captain Harry Allanson Ellsworth, USMC, *One Hundred Eighty Landings of United States Marines, 1800-1934* (Washington DC: History and Museums Division, Headquarters U.S. Marine Corps, 1974. On American piracy suppression operations in the Caribbean, Mediterranean and East Indies, see Albion and Pope, *Sea Lanes in Wartime*, 139-47. Navy diplomatic activities are well covered in David F. Long, *Gold Braid and Foreign Relations: Diplomatic Activities of Naval Officers,*

1778-1883 (Annapolis MD: Naval Institute Press, 1988). Navy scientific activities are discussed in Vincent Ponko, Jr., *Ships, Seas and Scientists: U.S. Naval Exploration and Discovery in the Nineteenth Century* (Annapolis MD: Naval Institute Press, 1974). See also Harold L. Burstyn, "Seafaring and the Emergence of American Science," in *The Atlantic World of Robert G. Albion*, ed. Benjamin W. Labaree (Middletown CT: Wesleyan University Press, 1975), 76-109.

[82] Forward depots - advanced bases of sorts - for the squadrons were set up at St. Thomas in the Danish Virgin Islands, Port Mahon in Spain's Balearic Islands, Rio de Janeiro, Valparaiso, Hong Kong and Porto Praya, in the Cape Verde Islands. One of the few early instances when a squadron deployed as such was off Naples in 1836, when President Andrew Jackson used the squadron to pressure the Neapolitans to pay a debt due the United States. For a good general overview of the forward squadrons in the nineteenth century, see Robert Greenhalgh Albion, "Distant Stations", U.S. Naval Institute *Proceedings* 80 (March 1954), 265-273; and John H. Schroeder, *Shaping a Maritime Empire: The Commercial and Diplomatic Role of the American Navy, 1829-1861* (Westport CT: Greenwood Press, 1985). For a more contemporary analysis, see John B. Hattendorf, "The Nineteenth Century Forward Stations," unpublished paper prepared for the U.S. Navy Forward Presence Bicentennial Symposium, Alexandria VA, The CNA Corporation, June 21, 2001.

[83] In setting up forward stations, the United States was emulating its former metropole. In 1817, the Royal Navy had 63 ships on forward stations in the Mediterranean, the East Indies, the West Indies, North America, South America, and Cape of Good Hope. See C.J. Bartlett, *Great Britain and Sea Power, 1815-1853* (Oxford (UK): Clarendon Press, 1963), 55 & 341.

[84] The Navy's annual Official Registers for this period show a fleet of 115 ships in 1818, dropping to 44 ships by 1824, and rising to 67 ships by 1841. See Preble, *Appendix to Merchant Vessels of the United States*, 3-4. For a detailed running tabulation of U.S. Navy warships built, building, and lost during this era, see Pratt, *Our Navy*, 421-2. Personnel figures are from *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 43

[85] This would make the U.S. Navy of that era roughly comparable to, say, the French Navy of 2002. Of course, the gap in the nineteenth century between the Royal Navy and the French or Russian navies, let alone the U.S. Navy, was enormous. On the relative standing of the U.S. Navy, especially in the eyes of the Royal Navy, see Sondhaus, *Naval Warfare*, 1-5, 22 & 32; David French, *The British Way in Warfare, 1688-2000* (London: Unwin Hyman, 1990), 130; Bartlett, *Great Britain and Sea Power,* x, 22, 28, 30-37, 52, 63-64, 69-74 & 276; Glete, *Navies and Nations*, vol. 2, 440, 465; and George Modelski, *Seapower in Global Politics, 1494-1*993 (Seattle WA: University of Washington Press, 1988), 71 and passim.

[86] By 1820, the United States had the ninth largest gross domestic product (GDP) in the world, and a per capita GDP on a par with that of France and about two thirds that of Great Britain. See Angus Maddison, *Monitoring the World Economy, 1820-1992* (Paris: Development Centre of the Organisation for Economic Co-operation and Development, 1995), 23 and 30. As Paul Kennedy points out, in the United States after 1776, "manufacturing output increased by a factor of nearly 50 so that by 1830 the country had become the 6th industrial power of the developed world." See *Rise and Fall of the Great Powers,* 94.

[87] Throughout most of the nineteenth century, the U.S. Navy's planned employment strategy was essentially to re-fight the War of 1812. On the Navy's "doctrine of qualitative superiority" and the mystique of the lone, big, fast heavily gunned frigate, see Robert J. Schneller, Jr., *A Quest for Glory: A Biography of Rear Admiral John A. Dahlgren* (Annapolis MD: Naval Institute Press, 1996), 54-56. See also Canney, *Lincoln's Navy*, 8.

[88] On nineteenth century British threats to the United States from the sea, see Rebecca Berens Matzke, "Britain Gets Its Way: Power and Peace in Anglo-American Relations, 1838-1846," *War in History* 8, (June 2001), 19-46; and Kenneth Bourne, *Britain and the Balance of Power in North America, 1815-1908* (Berkeley and Los Angeles CA: University of California Press, 1967). In January 1816, after the rearrangements following the end of the wars in Europe and America, the British still forward deployed no less than four squadrons and 45 warships in American waters, supported by advanced bases at Halifax

and Jamaica, . During the war scare of 1839, the British deployed a squadron in American waters of more than 41 warships. Ibid., 47, 79.

[89] Note that another "American" Navy- the Navy of the Republic of Texas - deployed during this period. While most of its operations were off its own coast, the Texas Navy did raid along the Mexican coast and conduct forward offensive operations off the Yucatan peninsula. See Jonathan W. Jordan, "Lone Star Republic's Navy," *MHQ* 12 (Autumn 1999), 28-37.

[90] On the important role played by American seaborne commerce and shipping in the first half of the nineteenth century, see Bauer, "A New Maritime Power Sets Sail," chap. in *A Maritime History of the United States*, 50-103.

[91] In July 1815, Commodore William Bainbridge deployed to the Mediterranean, flying his flag in *Independenc*e, 74, the first U.S. ship of the line to deploy to European waters. He and his squadron were relieved, in turn, by a squadron that included the ship of the line *Washington*, 74. Thus was established the first long-term continuous U.S. naval presence in the Mediterranean. Initial missions included guarding against attacks from North African corsairs and operations against piracy in the Aegean. See Field, *America and the Mediterranean World*.

[92] The West India Station had its roots in the New Orleans Station, set up to protect American commerce and combat piracy in the Gulf of Mexico in 1816. The ships of the station worked out of advanced bases at Key West and St. Thomas in the Danish West Indies. In 1818, the sloop *Ontario* became the first U.S. Navy ship to operate in the Pacific in peacetime; the next year the frigate *Macedonian* became the first U.S. Navy warship specifically tasked with commerce protection in that ocean. In 1821, a permanent squadron with an advanced depot in Chile was set up in the Pacific. In 1820, the first U.S. Navy warships had deployed to West Africa -carrying colonists - and to China. An anti-slavery squadron was in briefly place off West Africa from 1821 through 1823. On the West India station, see Richard Wheeler, *In Pirate Waters, Captain David Porter USN and America's War on Piracy in the West Indies* (New York: Thomas Y. Crowell Company, 1969). On the Pacific Station, see Robert E. Johnson, *Thence Round Cape Horn: The Story of United States Naval Forces on Pacific Station, 1818-1923* (Annapolis MD: Naval Institute Press, 1963). On the Africa Station, see J. Scott Harmon, "The United States Navy and the Suppression of the Illegal Slave Trade, 1830-1850", in Craig L. Symonds et al. (eds.), *New Aspects of Naval History: Selected Papers Presented at the Fourth Naval History Symposium, United States Naval Academy, 25-26 October 1979* (Annapolis MD: Naval Institute Press, 1981), 211-219; George M. Brooke, Jr., "The Role of the United States Navy in the Suppression of the African Slave Trade", in Department of History, United States Naval Academy, *Readings in American Naval Heritage* (New York: American Heritage Custom Publishing, 1977), 51-61; and Spencer Tucker, "Lieutenant Andrew H. Foote and the African Slave Trade," *The American Neptune* 60 (2000), 31-48.

[93] A Brazil Squadron was authorized by Congress in 1826 to protect American interests in the South Atlantic littoral in view of the commerce-disturbing conflicts among newly-independent Argentina, Brazil, Uruguay and Paraguay. Except in years when an African Squadron was operating, the Brazil Station also had responsibility for occasional West African cruises. See Patrick H. Roth, *The U.S. Navy's Brazil/ South Atlantic Station, 1826-1904: An Informal Look* (Unpublished manuscript), 1995; and Donald W. Giffin, "The American Navy at Work on the Brazil Station, 1827-1860", *The American Neptune*, 19 (October 1959), 239-56.

[94] In 1833, the sloop of war *Peacock* and the schooner *Boxer* made a show of force at Muscat, Oman, to facilitate signing of a trade treaty between Oman and the United States. She returned briefly in 1835. For histories of the U.S. Navy presence in the Arabian Sea and Persian Gulf region at that time and since, see Michael A. Palmer, *On Course to Desert Storm: The United States Navy and the Persian Gulf* (Washington DC: U.S. Naval Historical Center, 1992); and idem, *Guardians of the Gulf: A History of America's Expanding Role in the Persian Gulf, 1833-1992* (New York: The Free Press, 1992). See also Robert Erwin Johnson, *Far China Station: The U.S. Navy in Asian Waters, 1800-1898* (Annapolis MD: Naval Institute Press, 1979), 6-15. In 1830, the sloop of war *Concord* deployed to the Baltic to deliver the new American Minster to Russia to St. Petersburg. The U.S. Exploring Expedition, led by Charles

Wilkes, used a U.S. Navy squadron to conduct scientific research while circumnavigating the globe. See Herman J. Viola and Carolyn Margolis, eds., *Magnificent Voyagers: The U.S. Exploring Expedition, 1838-1842* (Washington DC: Smithsonian Press, 1985); William Stanton, *The Great United States Exploring Expedition of 1838-1842* (Berkeley CA: University of California Press, 1975); and Christman, *Naval Innovators*, 61-8.

[95] On the Pacific, see especially Johnson, *Far China Station.*

[96] In the Rush-Bagot Agreement of 1817, the United States and Great Britain agreed to limit naval forces on the Great Lakes and Lake Champlain to four small vessels each - one each on Lake Champlain and Lake Ontario, and two on the upper lakes. Ground forces were not discussed. The agreement was the first such arms limitation treaty in history, and warship force levels on the Lakes stayed quite low from there on in. Nevertheless, both the United States and Britain periodically considered breaking the agreement should relations between the two nations deteriorate and war again loom. See Stanley L. Falk, "Disarmament on the Great Lakes: Myth or Reality?" Naval Institute *Proceedings* 87 (December 1961), 69-73; and John Gooch, "Great Britain and the Defense of Canada, 1896-1914," chap. in *The Prospect of War: Studies in British Defense Policy, 1847-1942* (London: Frank Cass, 1981), 52-72.

[97] By 1851, there would be two and a half million Canadians and 23 million Americans. By 1871, there would be less than four million Canadians and over 40 million Americans. By 1900, there were fourteen times as many Americans as Canadians.

[98] On the U.S. Navy's operations against the Argentines in the Falklands, see "The Falkland/Malvinas Islands Clash of 1831-32: U.S. and British Diplomacy in the South Atlantic," *Diplomatic History*, 24 (Spring 2000), 185-209. On the Navy's punitive expedition to Quallah-Battoo (Kuala Batu), in Sumatra's Acheh region, see Celia Woodworth, "The USS *Potomac* and the Pepper Pirates," in *America Spreads her Sails*, ed. Barrow, 56-69.

[99] In 1834, the then-Commandant of the Marine Corps, Lieutenant Colonel Archibald Henderson, was promoted to colonel - continuing the gradual increase in rank of that office over the years. Meanwhile, the highest rank in the Navy continued to be that of captain, although the honorary title of commodore continued to be bestowed on squadron commanders. General officers continued to lead the U.S. Army, however. On Marine deployments of the period, see Harry A. Ellsworth, *One Hundred Eighty Landings of United States Marines, 1800-1934* (Washington DC: History and Museums Division, Headquarters U.S. Marine Corps, 1974).

[100] The Army usually received a larger annual budget than the Navy, except for a few years in the 1820s during the administration of President John Quincy Adams. See *Historical Statistics of the United States,* 1115. On the Army during this period, see William B. Skelton, "The Army in the Age of the Common Man, 1815-1845," in *Against all Enemies: Interpretations of American Military History from Colonial Times to the Present*, eds. Kenneth J. Hagan and William R. Roberts (New York: Greenwood Press, 1986), 91-112.

[101] The Second Seminole War was the largest Indian war fought by the United States east of the Mississippi and the only one in which the U.S. Navy played a significant role. It ran for seven years - from 1835 through 1842. Naval operations included a blockade of southern Florida by the West India Squadron, and patrols, raids and landings by sailors and Marines. See George E. Buker, *Swamp Sailors in the Second Seminole War* (Gainesville FL: University Press of Florida, 1997); and Raymond G. O'Connor, "The Navy on the Frontier," in *The American Military and the Frontier*, ed. Major James P. Tate (Washington DC: Office of Air Force History, Headquarters USAF and USAF Academy, 1978), 37-49.

[102] This was the Board of Engineers for Fortifications, also known as the "Bernard Board", after its French-born head. Navy participation included appropriate local yard commanders. The Board concluded that the Navy was the nation's first line of defense, but - since it was likely to remain small - that it needed to be complemented and supplemented by Army Corps of Engineers seacoast fortifications, as well as a regular Army, an interior communications network, and a well-organized militia. While the theory would remain influential, the wherewithal to implement it would only occasionally be forthcoming

from Congress. The report did, however, provide the template for beginning construction of a "Third System" of American coastal fortifications for protection of naval bases and other homeland defense tasks. See Browning, *Two if by Sea*, 27-31; Jamie W. Moore, *The Fortifications Board 1816-1828 and the Definition of National Security* (Charleston SC: The Citadel, January 1981); and Samuel J. Watson, "Knowledge, Interest and the Limits of Military Professionalism: The Discourse on American Coastal Defense, 1815-1860'" *War in History* 5 (July 1998), 280-307.

[103] During the Nullification Crisis, when South Carolina threatened to secede from the Union, the Navy deployed two schooners from Norfolk to Charleston, to back up nine Revenue Marine cutters there to enforce the nation's customs laws. The Army made military preparations as well. See Coakley, *Role of Federal Military Forces in Domestic Disord*ers, 94-103.

1841-1860 deployment strategy

[104] Great Britain was easily the world's predominant economic as well as maritime and naval power through most of the nineteenth century. See Paul M. Kennedy, *The Rise and Fall of British Naval Mastery* (New York: Charles Scribner's Sons, 1976), 151-154; and John Mearsheimer, *The Tragedy of Great Power Politics* (New York: W.W. Norton & Company, 2001), 76-7. During this period, the population of the United States finally drew abreast of Britain's (about 25 million each), although the United States produced only a fifth of Britain's pig iron output. For pig iron output comparisons, see B.R. Mitchell, *International Historical Statistics: The Americas*, 1750-1993, 4th edn. (New York: Stockton Press, 1998), 359; and idem, *International Historical Statistics: Europe, 1750-1988*, 3rd edn. (New York: Stockton Press, 1992), 448.

[105] On the stormy American relationship with Britain in the nineteenth century, see Mead, *Special Providence*, 18-24, 80-82, 115-119, 199-200.

[106] The Home Squadron was to consist of two steamships, two frigates, two sloops, a brig and a schooner. On the Home Squadron, see Harold and Margaret Sprout, *The Rise of American Naval Power, 1776-1918* (Princeton NJ: Princeton University Press, 116-124. On the nature of the naval threat as seen at the time, see the *Report of the Secretary of the Navy: 1841* (Washington DC: Navy Department, December 4, 1841), 357-9. See also Matzke, "Britain Gets its Way"; and Bourne, *Britain and the Balance of Power*.

[107] In 1842, in a refinement of the forward squadron deployment strategy, the Secretary of the Navy ordered his ships to be rotated more frequently among the squadrons, in order to broaden the experience base of his officers and to prevent what he saw as the pernicious effects of spending too much time in the same ports. The themes of this strategy are remarkably similar to those of the Navy's "FLEXOPS" deployment procedures of the 1980s. For the 1840s, see *Report of the Secretary of the Navy: 1842* (Washington DC: Navy Department, 1842), 541-2.

[108] For an overview of this era, see Geoffrey S. Smith, "An Uncertain Passage: The Bureaus Run the Navy, 1842-1861," in *In Peace and War*, ed. Hagan, 79-106.

[109] For example, a Mexican war scare in 1845 led the Secretary of the Navy to send the Home Squadron to positions off Vera Cruz, the Mediterranean squadron to Texas waters, and the Pacific Squadron to water's off Mexico's west coast. For the Mexican war, the Mediterranean Squadron ships redeployed to Western Hemisphere waters from 1845 to 1847, while the Brazil Squadron provided some ships to reinforce the home squadron off Mexico. On the Mediterranean squadron re-deployment, see Field, *America and the Mediterranean World*, 213-5.

[110] Mexico, which had had a larger population than the Thirteen Colonies in the eighteenth century, by now only had only a third as many people as the United States and was far behind her neighbor to the north economically.

[111] Joint coordination in the field during the Mexican War was generally good, despite the lack of any unified command structure. Relations between Army and Navy commanders were usually excellent. The basic reference is K. Jack Bauer, *Surfboats and Horse Marines: U.S. Naval Operations in the Mexican War, 1846-1848* (Annapolis MD: Naval Institute Press, 1969).

[112] Army-Navy wartime operational and tactical-level actions in California were effective. Relations among the commanders, however, were acrimonious.

[113] The landing at Vera Cruz was the first large-scale amphibious operation by the U.S. Navy and the largest until the landings in Morocco in 1942. It was also a high-water mark of joint cooperation in American military history. The Navy's Home Squadron conducted reconnaissance, pre-landing shore bombardment, and gunboat escort and crewing of Army landing craft. Commodore Connor's Home Squadron bombarded Vera Cruz and landed 8600 of General Winfield Scott's men in less than five hours, with no opposition or loss of life. Subsequently, large naval guns were brought ashore and naval crews helped bombard Vera Cruz from the land side. As with earlier and most later wars, the Army furnished its own sealift. The soldiers landed in surfboats crewed by sailors, the first specially built American landing craft. See Colonel John Fleming Polk, "Vera Cruz, 1847," in *Assault from the Sea: Essays on the History of Amphibious Warfare*, ed. Lieutenant Colonel Merrill L. Bartlett, USMC (Retired), (Annapolis MD: Naval Institute Press, 1983), 74-8.

[114] A much-augmented Home Squadron landed Marines in several small amphibious landings on the Mexican coast, although Marine participation in the big landing at Vera Cruz was minor. Pacific Squadron Marines were landed during the operations in California. A Marine regiment also fought ashore in the campaign for Mexico City as a temporary part of the Army (hence "From the halls of Montezuma . . "). Marine Corps force levels fluctuated between one and two thousand during this period.

[115] On the San Francisco Vigilante Operations, see Coakley, *Role of Federal Military Forces in Domestic Disorders*, 137-44.

[116] Joint Army-Navy relationships during this period were common. Naval Officers served jointly with Army officers on the Coast Survey Board of 1843, and on the Lighthouse Board, created in 1852. Also, during the 1850s the Navy provided transport support for a new U.S. Army Camel Corps, transporting camels for the Army from the eastern Mediterranean to Texas. On Army and Navy service on the Lighthouse Board, see Noble, *Lighthouses and Keepers*. On the joint expedition to procure and transport the camels, see Field, *America and the Mediterranean World*, 299-301.

[117] These reasonable ship numbers are from Canney, "Historic Background and the International Scene", *Lincoln's Navy*, 10,17. The Navy's annual *Official Registers* for this period, however, show a fleet of 67 ships in 1841, rising to 92 ships during the Mexican War in 1848, dropping to 73 ships by the mid 1850s, and rising again to 90 ships in 1861. See Preble, *Appendix to Merchant Vessels of the United States*, 3-4. For a detailed running tabulation of U.S. Navy warships built, building, and lost during this era, see Pratt, *Our Navy*, 422-3. Personnel figures are from *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 42-3. From 1842 through 1845, during the administration of President John Tyler, the Navy had a larger budget and more men under arms than did the Army. For budget figures, see *Historical Statistics of the United States*, 1115.

[118] For example, U.S. Navy commanders joined Royal Navy commanders and others in operations in Argentina (1852 and 1859), China (1854 and 1855), and Uruguay (1855 and 1858). In 1859, during the Second Opium War in China, Commodore Joseph Tattnall, commander of the East India Squadron, assisted the Royal Navy in operations against the Taku forts guarding the sea approaches to Beijing, famously quoting Sir Walter Scott, "Blood is thicker than water".

[119] The Paraguayan Expedition was also the largest U.S. military operation ever on the South American continent. War was adverted by last-minute American diplomatic efforts (backed by visible combat-credible forward naval presence). America received an indemnity and a new commercial treaty was signed. See John Hoyt Williams, "The Wake of the *Water Witch*," Naval Institute *Proceedings* Supplement, 1985), 14-19.

[120] The most infamous was probably Commodore Thomas ap Catesby Jones's 1842 landing in Monterey, California, based on a mistaken idea that the United States was at war with Mexico.
[121] On the Fiji Expedition of 1858, see "Come, Papillangi, Our Fires are Lighted," in *America Spreads her Sails*, ed. Barrow, 112-125.
[122] The newly commissioned frigate *St. Lawrence* deployed to Prussia, Denmark and Sweden. The German States, then striving to establish a German Federation, had recently become aware of the need for a national navy and had asked the United States for help in establishing and training one. *St. Lawrence* took four German midshipmen on board for several months' training, and her captain, Hiram Paulding, consulted with leaders in several German cities on what setting up a Navy involved. See *Dictionary of American Naval Fighting Ships*, vol. 6 (Washington DC: Naval History Division, Department of the Navy, 1976), 242.
[123] The first U.S. Navy warship on the Yangtze was the sidewheel frigate *Susquehanna*, which deployed from Shanghai to Wuhu in June 1854. See Rear Admiral Kemp Tolley (Retired), *Yangtze Patrol: The U.S. Navy in China* (Annapolis MD: Naval Institute Press, 1971).
[124] An exception was the steam frigate *Minnesota*, which called at Muscat, in Oman, in 1859.
[125] On nineteenth century relationships between American missionaries and the U.S. Navy in the Eastern Mediterranean, see Field, *America and the Mediterranean World*.
[126] Also, in 1848, the forward depot for the Mediterranean Squadron shifted from Spanish Minorca to La Spezia, in the Kingdom of Sardinia.
[127] U.S. Navy warships often sailed in company, but this was not the same thing as maneuvering at sea in formation. Thoughtful Navy commanders, however, as a consequence of thinking through the essentials of their profession, did ponder the problems of squadron and fleet tactical operations. In 1858, the Navy Department issued a revision of its tactical signal book of 1813, and in 1859, Commander James Ward published a *Manual of Naval Tactics* to "Endeavor to awaken attention to a most important, yet neglected branch of the Naval profession." See Robison and Robison, *A History of Naval Tactics*, 583-5 and 671-673.

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[128] There were only eleven active U.S. Navy warships deployed in American home waters in March 1861.
[129] There were less than ten thousand officers and men in the U.S. Navy in 1860, growing to over 58,000 (and 3860 Marines) in 1865. The Union Navy, however, was dwarfed by the Union Army, which numbered over a million men in 1865. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 44. On the Union Navy during the Civil War, see Canney, *Lincoln's Navy*, from which the ship numbers cited here were taken (page 81). For a recent critical review of the literature on the American navies in the Civil War, see Robert J. Schneller, Jr., "Charted and Uncharted Waters: Civil War Naval Historiography,", *International Journal of Naval History*, 1 (April 2002), (on-line). Another good general work is Rear Admiral Bern Anderson (Retired), *By Sea and by River: The Naval History of the Civil War* (Westport CT: Greenwood Press, 1962). On Union naval strategy, see Canney, "Union Naval Strategy and Logistics in the Civil War", chap. in *Lincoln's Navy*.
[130] Re-deploying the distant squadrons to Confederate waters took some time. Thus there were few Union naval forces available yet to contest the Confederate attack on Fort Sumter that began the war. On the Blockading Squadrons, see Robert M. Browning, Jr., *From Cape Charles to Cape Fear: the North Atlantic Blockading Squadron During the Civil War* (Tuscaloosa AL: University of Alabama Press, 1993); George E. Buker, *Blockaders, Refugees and Contrabands: Civil War on Florida's Gulf Coast, 1861-1865* (Tuscaloosa AL: University of Alabama Press, 1993); and Jeffrey W. Despain, "Operations of the Western Gulf Blockading Squadron and the Department of the Gulf in the Gulf of Mexico, 1862-1864," (M.A. thesis: U.S. Army Command and General Staff College, 1996).

[131] Welles's strategy was thus aligned with General Winfield Scott's 1861 "Anaconda Plan" to slowly squeeze the Confederacy to death through a long blockade and seizure of the Mississippi. Scott's plan, however, gave pride of place to its naval component, and did not take into account the necessity for major land invasions of the South. The efficacy of the blockade has been the subject of intense historical debate and analysis, and has occasioned a sizeable literature. For a harsh critique of its utility, see William N. Still, Jr., "A Naval Sieve: The Union Blockade in the Civil War," *Naval War College Review*, 36 (May-June 1983), 38-45. A recent analysis is David G. Surdam, *Northern Naval Superiority and the Economics of the American Civil War* (Columbia SC: University of South Carolina Press, 2001). Surdam argues that the blockade, while not sealing the Confederacy off from the outside world, did so disrupt its internal transportation network that it crippled the Southern economy. See also idem, "The Union Navy's Blockade Reconsidered," *Naval War College Review*, 51 (Autumn 1998), 85-107.

[132] In a classic naval enabling operation, the West Gulf Blockading Squadron under Farragut took New Orleans - the South's largest port - in April 1862, followed by an army of occupation the following month.

[133] Examples of good joint Army-Navy cooperation included the captures of Hatteras Inlet and Port Royal in 1862, the hand-off at New Orleans in 1862, the campaigns on the western rivers, the Mobile Bay campaign in 1864, and the Second Fort Fisher campaign in 1865. Stormy joint relationships characterized the Galveston, Sabine Pass and First Fort Fisher campaigns, however. Joint command and control arrangements were normally ad hoc and based on the principal of mutual cooperation. Signal communications between Army and Navy forces, when required, were normally achieved by putting Army signalmen on board Navy vessels. On jointness during the Civil War, see Scott W. Stucky, "Joint Operations in the Civil War", *Joint Force Quarterly,* no. 6 (Autumn/Winter 1994-95), 92-105; Despain, "Operations of the Western Gulf Blockading Squadron," and Rowena Reed, *Combined Operations in the Civil War* (Annapolis MD: Naval Institute Press, 1978); and Stivers, *Privateers & Volunteers*. The Fort Fisher campaigns are contrasted in Captain Joseph E. King, USA (Retired), "The Fort Fisher Campaigns, 1864-65," in *Assault from the Sea*, ed. Bartlett, 95-104.

[134] On Army sealift see, for example, Robert W. Daly, "Burnside's Amphibious Division, 1862,", in *Assault from the Sea*, ed. Bartlett, 88-94. The Army deployed some 4000 vessels of its own during the Civil War, dwarfing the Navy's fleet, at least in sheer numbers. The vast majority of army ships were transports. See Canney, *Lincoln's Navy*, 211.

[135] The Revenue Marine operated extensively during the war, however, performing a wide variety of maritime operations. See Canney, *Lincoln's Navy*, 206-210

[136] Despite the creation of Navy flag ranks during the war, The Marine Corps Commandants remained colonels until 1867. On Union Marine Corps operations, see Canney, "The Civil War Marine Corps," chap. in *Lincoln's Navy*, 153-160.

[137] Welles, however, kept the frigate *Constellation* on forward station in the Mediterranean until 1863. On Welles's focus on direct forward operations against the Confederacy itself, and his neglect of Union homeland defense, see Adam B. Siegel, *The Wartime Diversion of U.S. Navy Forces in Response to Public Demands for Augmented Coastal Defense*, PP 472 (Alexandria VA: Center for Naval Analyses, November 1989). In 1862 a short-lived West India Squadron was re-established under Acting Rear Admiral Charles Wilkes, to run down the raiders *Alabama* and *Florida* in Caribbean and South Atlantic waters. It used Cap Haitien, Haiti as a forward coaling station. Popularly called the Flying Squadron, it was disestablished in 1863 and its area taken over by the East Gulf Squadron in 1864. 32. See Canney, *Lincoln's Navy*, 32. In one of the few significant anti-raider actions, the screw sloop *Kearsarge* famously ended *Alabama*'s commerce-destroying career off France in 1864.

[138] On the use of the Union Navy in offensive forward shore bombardment, see R. A. Reed, "Naval Bombardment of Coastal Fortifications During the American Civil War," in *Stockholm 12-15 VIII 1973: Records of the 2nd International Colloquy on Military History* (Brussels: International Commission of Military History, 1975), 69-89.

[139] On the Pacific Squadron's deployments during the Civil War, see Johnson, "Guarding the Gold Steamers," chap. in *Thence Around Cape Horn*, 113-123.

[140] The denuded East India Squadron shifted its depot from British Hong Kong to Portuguese Macao due to strained relations with great Britain during the war.
[141] In 1863, the East India station screw sloop *Wyoming* sank three Japanese warships and bombarded forts ashore in retaliation for their firing on an American merchant vessel in the Shimonoseki Strait, between Kyushu and Honshu. (This was the first sinking of a Japanese vessel by an American warship in history). Later, *Wyoming* just missed intercepting the Confederate raider *Shenandoah* in the Strait of Sunda. In 1864, an ad hoc coalition of British, French, Dutch and American warships bombarded forts and landed forces against the warlord controlling Shimonoseki Strait. The American contribution was a chartered armed merchant steamer. See Theodore P. Savas, "Gauntlet of Fire!" *Naval History*, 13 (January/February 1999), 27-30; and Robert J. Cressman, "To Show the American Flag," *Naval History*, 2 (Spring 1988), 20-25
[142] This was the "*Trent* Affair", in which Confederate agents en route to Europe were forcibly taken from the British steamer *Trent* by, Captain Charles Wilkes in the frigate *San Jacinto*. The British fleet in American waters by January 1862 numbered some 40 warships, backed by others at Gibraltar, and its commander had developed a planned wartime employment strategy against the United States, especially New York. See Andrew Lambert, "Australia, the *Trent* Crisis of 1861 and the Strategy of Imperial Defence," in *Southern Trident: Strategy, History and the Rise of Australian Naval Power*, eds. David Stevens and John Reeve (Crows Nest, New South Wales, Australia: Allen & Unwin, 2001), 99-118; Kenneth Bourne, "British Preparations for War with the North, 1861-1862," *The English Historical Review*, 76 (October 1861), 600-632; and idem, *Britain and the Balance of Power in North America*, 238-9, 252. On the eastern Pacific, see Johnson, *Thence Around Cape Horn*, 117.
[143] American warships were present to keep order ashore during and after French naval operations off Acapulco in 1863 and 1864. See Johnson, *Thence Around Cape Horn*, 119-120.
[144] For a Russian interpretation of the visit and subsequent Russian and U.S. Navy visits, see Admiral Igor V. Kasatonov, "Facets of Cooperation," *Sea Power* (September 1996), 35-40.
[145] By the end of the Civil War, some 690 vessels had been in service (this is an aggregate total, rather than a single total at any one time, but it does not include dozens of warships still under construction at war's end). Details are in Canney, "The Ships of Lincoln's Navy", chap. in *Lincoln's Navy*. This was the largest fleet the U.S. Navy would deploy until World War II.
[146] According to one scholar, by 1864, the United States had reached parity with the navies of Britain and France. At that time, the United States had 671 ships, including 71 ironclads and 51,000 men; France had 376 ships, with 18 ironclads and 51,998 men; while Britain had 417 ships, with 30 ironclads and 68,811 men. See Regis A. Courtemanche, *No Need of Glory: The British Navy in American Waters, 1860-1864* (Annapolis MD: Naval Institute Press, 1977), 172.
[147] President Andrew Johnson deployed General Philip Sheridan and an army of Civil War veterans to the Rio Grande border from 1865 to 1867 to pressure the French to quit Mexico. American mediation in 1871 secured the end of Spanish hostilities against Peru. See A. Curtis Wilgus and Raul d'Eca, *Latin American History* (New York: Barnes and Noble, 1963), 249 & 431. On U.S. Navy-Royal Navy cooperation against the Spanish off Chile and Peru from 1864 to 1866, see Clark Reynolds, *Navies in History* (Annapolis MD: Naval Institute Press, 1998), 135; and Johnson, *Thence Around Cape Horn*, 125-6.

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[148] On the Confederate Navy, see Tom Henderson Wells, *The Confederate Navy: A Study in Organization* (Tuscaloosa AL: The University of Alabama Press, 1971); Raimondo Luraghi, *A History of the Confederate Navy* (Annapolis MD: Naval Institute Press, 1996); and William N. Still, Jr., ed., *The*

Confederate Navy: The Ships, Men and Organization, 1861-1865 (Annapolis MD: Naval Institute Press, 1997).

[149] The figure of 130 ships is from Robert Holcombe, "Types of Ships,", chap. in *The Confederate Navy*, ed. Still, 68. The maximum number of naval officers on active duty at one time (April 1864) was 727; the maximum enlisted strength was 4460. Wells, *Confederate Navy*, 19, 39. Thus the Confederate Navy at its peak had only half the manpower of the pre-war U.S. Navy.

[150] On Confederate naval strategy, see Norman C. Delaney, "Strategy and Tactics", chap. in *The Confederate Navy*, ed. Still. The Confederate raids on the North included Lieutenant Charles "Savez" Read's unsuccessful attempt to capture some ships in Portland , Maine. See Albion and Pope, *Sea Lanes in Wartime*, 158-166. On Lt. Reed's operations, see R. Thomas Campbell, *Sea Hawk of the Confederacy: Lt. Charles Read and the Confederate Navy* (Shippensburg PA: Burd Street Press, 2000); and Robert A. Jones, *Confederate Corsair: The Life of Charles W. Savez" Read* (Mechanicsburg PA: Stackpole Books, 2000). On an aborted forward Confederate attempt in 1864 to seize *Michigan,* the Union's warship on the Great Lakes, see Reginald C. Stuart, *United States Expansionism and British North America, 1775-1871* (Chapel Hill NC: University of North Carolina Press, 1988), 178-9. On a failed Confederate forward operation to seize a steamer off Panama, foiled by the Union's Pacific Squadron, see Johnson, *Thence Around Cape Horn*, 121.

[151] On Civil War privateering, see Thompson, *Mercenaries, Pirates and Sovereigns*, 75-76.

[152] The quintessentially forward-based warship, *Alabama* throughout her deployment never called at a Confederate port.

[153] Confederate cruisers sank more than 200 Union merchant ships, fishing craft and whalers. See ibid., 129.

[154] Tracks of *Alabama* and *Shenandoah* are from Symonds, *Historical Atlas*, 102-3.

[155] On Confederate Army and Navy relationships, see Wells, *Confederate Navy*, 8-10, 141-143.

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[156] By the end of 1865, the Navy numbered only 120 vessels of all types. Welles pared the Navy each year thereafter - 115 vessels in commission in 1866, 103 in 1867, and only 81 in 1869, his last year as Secretary. See John Niven, "Gideon Welles: 5 March 1861 - 4 March 1869,", in *American Secretaries of the Navy,* vol. 1, 356. By contrast, the Revenue Marine deployed 35 cutters, of which 25 were steamers, in 1872; in 1881, the numbers were 36 and 31, respectively. See Irving H. King, *The Coast Guard Expands, 1865-1915: New Roles, New Frontiers* (Annapolis MD: Naval Institute Press, 1996), 14 & 17. The Navy's highly inflated annual *Official Registers* for this period show a fleet of 320 ships in 1866, dropping to 203 in 1869 and 166 in 1874. See Preble, *Appendix to Merchant Vessels of the United States*, 3-4. For a listing of the small number of additions to the fleet and the much larger number of losses during this period, see Pratt, *Our Navy*, 441-2. For a more detailed breakdown of the active Navy's force levels each year after 1886, see Naval Historical Center, *U.S. Navy Active Ship Force Levels*. The Navy's end strength was also slashed, from over 58,000 officers and men in 1865 to about 10,000 in the 1870s and 1880s. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 44. Of note, a large percentage of the enlisted force was of foreign citizenship, and an even larger percentage - probably about half - was foreign born. See Frederick S. Harrod, *Manning the New Navy: The Development of a Modern Naval Enlisted Force, 1899-1940*, (Westport CT: Greenwood Press, 1978), 15-17, 55, 178-181.

[157] By 1884 the United States Navy ranked twelfth in quantity among the world's fleets, and probably below that in quality. See William N. Still, Jr., *American Sea Power in the Old World: The United States Navy in European and Near Eastern Waters, 1865-1917*, (Westport CT: Greenwood Press, 1980),

57. For an overview of the era, see Lance C. Buhl, "Maintaining an 'American Navy'," in *In Peace and War*, ed. Hagan, 145-73.

[158] Secretary of the Navy Welles established a South Atlantic Squadron in March 1865, during the War of the Triple Alliance (between Paraguay and Argentina, Uruguay and Brazil). It relied on depots at Rio de Janeiro and Buenos Aires. He established a European Squadron, responsible for Mediterranean and West African waters, in June 1865. The squadron abandoned La Spezia as a depot, shifting its forward support base to Lisbon, Portugal and later to Villefranche, on the French Riviera. (See Still, Jr., *American Sea Power in the Old World*). The East India Squadron was reestablished as the Asiatic Squadron in July 1865, with a depot at Hong Kong, and its area of operations expanded to include the Indian Ocean. A North Atlantic Squadron and a Gulf Squadron were created, dividing the waters of the old Home Squadron. The Pacific Squadron was beefed up and divided into a North Pacific and a South Pacific Squadron in 1866, re-united in 1869, re-divided in 1872, and united again in 1878. The main Pacific base was Mare Island, California, with depots in Panama, Callao and Valparaiso.

[159] Basic works on the era's deployment strategy are Albion, "Distant Stations" ; Kenneth J. Hagan., *American Gunboat Diplomacy and the Old Navy: 1877-1889* (Westport CT: Greenwood Press, 1973); Mark Russell Shulman, *Navalism and the Emergence of American Sea Power, 1882-1893* (Annapolis MD: Naval Institute Press, 1995); Stephen S. Roberts, *An Indicator of Informal Empire: Patterns of U.S. Navy Cruising on Overseas Stations, 1869-1897*, CNA Professional Paper 295 (Alexandria VA: Center for Naval Analyses, September 1980); and Still, *American Sea Power in the Old World: The United States Navy in European and Near Eastern Waters, 1865-1917*. On the U.S. Navy and homeland defense during this period, see Lawrence Carroll Allin, "The Navy and la Guerre de Cote," *Periodical: The Journal of the Council on America's Military Past*, 11 (March 1981), 3-16. On the use of the monitors, see *Monitors of the U.S. Navy, 1861-1937* (Washington DC: Naval History Division, Navy Department, 1969).

[160] The Gulf Squadron was reconstituted in 1866 to keep an eye on the Emperor Maximilian's deteriorating position in Mexico, and the French forces that supported him. With the withdrawal of the French and the subsequent defeat and execution of Maximilian in 1867, the Squadron was disbanded and its forces re-allocated to the North Atlantic Squadron. See Louis N. Feipel, "The United States Navy in Mexico, 1821-1914," chap. 7, "Operations Subsequent to the Mexican War, 1854-1870," Naval Institute *Proceedings* 41 (November-December 1915), 1998-2001.

[161] One difference, however, was the coastal deployment of a few monitors to implement the planned employment strategy of homeland defense.

[162] The U.S. merchant fleet declined rapidly in the years following the Civil War, due to Confederate depredations, Union Army and Navy requisitions of merchant ships, wartime flight of U.S. shipping to foreign flags, technological backwardness, the decreased competitiveness of American shipbuilding and shipping, and the overwhelming advantages of the British shipping industry. On the effects of the Civil War on U.S. merchant shipping, see and Donovan, "The Civil War and the Turn to the West, 1860-1880", chap. in *Abandoned Ocean*, 64-78. On post-Civil War American sea-borne commerce, see Bauer, "Turning Inward", chap. in *A Maritime History of the United States*, 241-296.

[163] The decline of interests to be protected forward and the decline of threats to those interest remaining were not lost on the Congress, which in turn allowed the Navy shrink.

[164] Thus the workhorse of the period was the wooden-hulled sailing ship with auxiliary steam. The nation and the Navy possessed the technical expertise to field more modern - even revolutionary - systems, but such systems were unnecessary to implement the deployment strategy and actual employment strategy of the era. The screw frigate *Wampanoag*, for example, with a revolutionary propulsion plant, was commissioned briefly in 1868. Her potential utility as a surge commerce raider and destroyer of same was trumped by her unsuitability for forward station operations other than war. See Hughes, *Fleet Tactics and Coastal Combat*, 237-8; Christman, *Naval Innovators*, 199-207; and Stephen C. Small, "The Wampanoag Goes on Trial," *Naval History*, 16 (August 2002), 32-36. The burning of the ironclad steamer *New Ironsides* in December 1866 and the sale of the ironclad screw frigate *Dunderberg* to France

in June 1867 left the United States with no rigged seagoing ironclads. See Sondhaus, *Naval Warfare*, 126.

[165] There is a large literature analyzing the situation of the Navy after the Civil War. See, for example, Stanley Sandler, "A Navy in Decay: Some Strategic Technological Results of Disarmament, 1865-69 in the U.S. Navy", *Military Affairs*, 35 (December 1971), 138-142.

[166] In 1883, Congress authorized construction of four modern unarmored steel warships - the full-rigged steam and sail cruisers *Atlanta, Boston*, and *Chicago*, and the dispatch-vessel *Dolphin*. They did not deploy, however, until 1889. In 1886, Congress authorized construction of *Maine* (originally an armored cruiser) and *Texas* (an armored battleship), following Brazil's acquisition of a British-built armored cruiser considered capable of defeating the entire U.S. fleet. They did not deploy, however, until 1895.

[167]The May 1871 Korean Expedition was deployed to attempt to help negotiate a treaty of amity and commerce. The five-ship Asiatic Squadron force was fired upon by Korean forts, however, whereupon sailors and Marines were landed and the forts stormed and taken. No treaty, however, was negotiated, under these circumstances. The 1882 intervention in Alexandria had humanitarian and peace-keeping elements. The March 1885 landing in Panama was to safeguard American business interests and secure the railway, during an unsuccessful Panamanian uprising against Colombia. It was the largest American amphibious operation between the Civil War and the Spanish-American War, and was a precursor of the Marine seizure of Guantanamo Bay as an advanced base over a decade later. On Korea, see Lieutenant Colonel Merrill L. Bartlett, USMC (Retired) and Jack Sweetman, "River Raid on Korea," *Naval History*, 15 (December 2001), 43-45. On Alexandria, see Robert L. Robinson, "Gunboat Diplomacy 1882: The United States Navy and the Bombardment of Alexandria," *Warship International*, (1, 1982), 47-56. On Panama, see Jack Shulimson, "U.S. Marines in Panama, 1885," in *Assault from the Sea*, 107-120). On the Marines generally during this period, see idem, The *Marine Corps' Search for a Mission, 1880-1898* (Lawrence KS: University Press of Kansas, 1993.

[168] *Ticonderoga* was the first steam-powered American warship to circumnavigate the globe, commanded by Commodore Robert W. Shufeldt, *Ticonderoga* deployed to West and East Africa, the Gulf, India, Southeast Asia, China, Korea and Japan. Shufeldt became the first U.S. Navy commander to enter the Persian Gulf, visiting Bushire and Basra. He also completed negotiation of a commercial treaty between the United States and Korea. See Hagan, *American Gunboat Diplomacy and the Old Navy*.

[169] The Baltic visit made such a lasting impression that - a few years after the Cold War had ended - it was cited as an example of traditional Russian-American naval cordiality by a Russian Navy admiral. See Admiral Kasatonov, "Facets of Cooperation," 36. The aging U.S. Navy screw sloop *Brooklyn* called at Muscat en route to the Far East in 1886. See Johnson, *Far China Station*, 217.

[170] On *Ashuelot*'s cruise up the Yangtze, see Tolley, *Yangtze Patrol*.

[171] On *Wyoming*'s initial U.S. Navy deployment into the Black Sea - to explore opening the region up to American commerce - see Field, *America and the Mediterranean World*, 377-8.

[172] Combined naval landings were made in Uruguay, in Hawaii and - often - in China. For example, in February 1868, detachments from five ships of the South Atlantic Squadron were landed on two occasions as part of a five-nation multinational force under the command of an Italian rear admiral, to protect foreign nationals during an insurrection in Montevideo.

[173] The post-Civil War Army was employed internally to occupy the South (until 1876), combat restive Indians, suppress national disorder, and build and man the coastal fortifications. The Army also returned to guarding the Mexican frontier. Immediately after the war, in June 1865, General Philip Sheridan assembled 52,000 men along the Rio Grande to contain the Mexican Civil War and demonstrate to the French American displeasure at their continued presence in the Western Hemisphere (at the same time that the U.S. Navy's Gulf Squadron was created and deployed off Mexico's coast). See Jerry M. Cooper, "The Army's Search for a Mission, 1865-1890," in *Against all Enemies*, eds. Hagan and Roberts, 173-196.

[174] In 1884, three Navy-led steamers deployed from New York and rescued the Army's Greely Expedition, which had set out for the North Pole in 1881. The Navy had previously been involved in an

1879-1882 expedition in which the steam bark *Jeannette* had deployed form San Francisco in an ill-fated attempt to reach the North Pole via the Bering Strait. Naval officers were members of the 1866 Harbor Defense Board, the 1883 Gun Foundry Board, and the 1885 Joint Army-Navy Board on Fortifications and Other Defenses (the "Endicott Board"). The first included Rear Admirals Charles H. Davis and John Dahlgren, and Commodore James Alden. The last included two equally distinguished naval officers - Commander W.T. Sampson and Commander Caspar F. Goodrich - and recommended *inter alia* an increase in Navy procurement of floating batteries, gunboats, torpedo boats, rams, and underwater mines. On the naval aspects of the Harbor Defense and Endicott Boards, see Browning, "A System in Flux" and "A System Reestablished," chaps. in *Two if by Sea*, 129-182; Schneller, *A Quest for Glory*, 326-7; Rowena Reed, "The Endicott Board - Vision and Reality," *Periodical: The Journal of the Council on America's Military Past* 11 (Summer 1979), 3-17; Edward Ranson, "The Endicott Board of 1885-1886, and the Coast Defenses," *Military Affairs*, 31 (Summer 1967), 74-84; and Lieutenant Colonel Kenneth Earl Hamburger, U.S. Army, "The Technology, Doctrine and Politics of U.S. Coast Defenses, 1880-1945," (Ph.D. diss.: Duke University, 1986).

[175] In October 1873, a Spanish cruiser captured *Virginius*, an American-manned vessel running guns to Cuban rebels. The resultant war scare in the United States included concentrating warships from various squadrons off Key West for three weeks of exercises. This wooden screw fleet included five frigates and fourteen sloops, supplemented by six monitors - the largest fleet assemblage since the Civil War. The fleet drilled in the evolutions contained in the 1873 *Tactical Signal Book*, and conducted experiments with spar torpedoes, but fleet material and operational deficiencies were glaring. See Sondhaus, *Naval Warfare*, 127; Robison and Robison, *A History of Naval Tactics*, 696-7; and Commodore Foxhall A. Parker, "Our Fleet Manoeuvres in the Bay of Florida, and the Navy of the Future," Naval Institute *Proceedings* 1 (no. 8, 1874), 163-78.

[176] Mark Shulman argues persuasively that the traditional planned wartime employment strategy for the Navy had been a mixture of coastal defense and forward commerce-raiding, with an edge given after the Civil War to coastal defense. During the early 1880s, the Navy's intended coastal defense role, however, was jettisoned and abandoned to the Army, freeing the fleet up for an expanded forward commerce-raiding role - a *guerre de course*. By the late 1880s, however, this now-forward planned employment strategy had changed yet again, from *guerre de course* to *guerre d'escadre* - forward battle fleet operations. Thus Navy *planned* employment strategy was transformed from coastal defense and forward commerce-raiding at the beginning of the 1980s to forward battle fleet operations at the end of the decade. Meanwhile, of course, the Navy's *actual* employment strategy was to conduct forward military operations other than war (MOOTW), and its deployment strategy was aligned with it by keeping small squadrons on forward stations around the world. See Shulman, *Navalism and the Emergence of American Seapower*, 4, 112-113, 117-118 and *passim*.

[177] In 1870, the United States still trailed Great Britain in per capita Gross National Product, however, and would do so for the remainder of the century. For statistical comparisons among the nations for 1870 and later, see Maddison, *Monitoring the World Economy*. For an analysis of America's changed economic status, see Kennedy, *Rise and Fall of the Great Power*s, 242-9.

[178] Administration of Alaska was entrusted to the U.S. Army until 1876, representing the only major overseas deployment of the Army between the Mexican and Spanish-American Wars. The Revenue Cutter Service provided forces in western Alaskan and Aleutian waters. In response to an outbreak of lawlessness in the territory, the Navy stationed a warship at Sitka from 1879 through the end of the century, reporting operationally to the Secretary of the Navy. See Mel Crain, "When the Navy Ruled Alaska," Naval Institute *Proceedings* 92 (February 1955), 198-203; and Dennis L. Noble and Truman R. Strobridge, *Alaska and the U.S. Revenue Cutter Service, 1867-1915* (Annapolis MD: Naval Institute Press, 1999). Midway was annexed after the captain of a U.S. Navy screw sloop raised his flag on it, in December 1867.

[179] On the nature of this great naval transformation, see Samuel P. Huntington, "National Policy and the Transoceanic Navy," Naval Institute *Proceedings* 80 (May 1954), 483-493. On its details, see Walter R. Herrick, Jr., *The American Naval Revolution* (Baton Rouge LA: Louisiana State University Press, 1966). For an overview of this era, see Ronald Spector, "The Triumph of Professional Ideology: The U.S. Navy in the 1890s," in *In Peace and War*, ed. Hagan, 174-185.

[180] The extraordinary economic growth of the United States during this and the adjacent periods was arguably the most important change then occurring in the world. Between the end of the Civil War and the outbreak of the Spanish-American War, for example, American coal production increased by 800 percent and steel rails by 523 percent. Crude petroleum production rose from about 3 million barrels in 1865 to over 55 million in 1898. Steel ingots and castings went from 20,000 long tons to nearly 9,000,000. See Kennedy, *Rise and Fall of the Great Powers*, 242.

[181] In yet another addition to the lengthy list of military operations other than war (MOOTW) conducted by the Navy, the service now took on duties of civil government, in Guam and Samoa. See Henry P. Beers, *American Naval Occupation and Government of Guam, 1898-1902* (Washington DC: Navy Department Office of Records Administration, March 1944); and Captain J.A.C. Gray, *Amerika Samoa: A History of American Samoa and its United States Naval Administration* (Annapolis MD: Naval Institute Press, 1960).

[182] Thus the fleet at the end of 1905 had quadrupled in size from its level in 1889 - from 43 to 174 ships, including 12 battleships, 24 cruisers, 16 destroyers and eight submarines. For a more detailed breakdown by ship type, see Naval Historical Center, *U. S. Navy Active Ship Force Levels*. For a listing of additions and losses to the fleet during this period, see Pratt, *Our Navy*, 443-7. For international naval comparison fluctuations between 1896 and 1906, see Aaron L. Friedberg, *The Weary Titan: Britain and the Experience of Relative Decline: 1895-1905* (Princeton NJ: Princeton University Press, 1988), 153. See also David C. Evans and Mark R. Peattie, *Kaigun: Strategy, Tactics and Technology in the Imperial Japanese Navy, 1887-1941* (Annapolis MD: Naval Institute Press, 1997), 147. The Navy's manpower also rose during this period: From less than ten thousand in 1889 to twelve thousand in 1897. The Spanish-American War saw U.S. Navy end strength double to over 22,000, and then grow to 33,000 by 1905. The U.S. Marine Corps meanwhile grew from less than 2000 in 1889 to more than 7000 in 1905. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 45-6.

[183] The contrast between American naval and merchant marine policies of the period is developed in Gibson and Donovan, "Maritime Decline, Naval Revival," chap. in *Abandoned Ocean*, 79-99.

[184] Mahan saw a deployment strategy of global dispersion as pernicious, exposing the fleet to piecemeal annihilation and dissipating the fleet's offensive power against an enemy. Protection of commerce, in his view, stemmed from control of the seas by a battle fleet, not forward presence by small squadrons. His interest in the actual employment strategy of the Navy in the Third World was nil; his interest in its planned employment against other naval powers was paramount. His exhortations to form a consolidated battle fleet were echoed by others. Mahan's most influential work, *The Influence of Sea Power Upon History, 1660-1783* (Boston: Little, Brown) was published in 1890. In it, Mahan argued for procurement and deployment of concentrated battle fleets, and against dispersed squadrons, the use of naval forces for homeland defense missions, and commerce-raiding strategies. Operations other than war, peacetime forward presence, and smaller-scale contingencies get barely a glance. Mahan's voluminous subsequent outpouring over the next quarter century often repeated these themes. The most important recent scholarship on Mahan is in Jon Tetsuro Sumida, *Inventing Grand Strategy and Teaching Command: The Classic Works of Alfred Thayer Mahan Reconsidered* (Baltimore MD: The Johns Hopkins University Press, 1997).

[185] Initially, planning of naval employment strategies for war was done at the Naval War College in Newport, although it slowly migrated to Washington as well with the creation of the Navy's General Board in 1900. For war planning against Spain in the 1890s, see Hayes, "War Plans and Preparation and their Impact on U.S. Naval Operations in the Spanish-American War." For war planning against Britain in the 1890s and first decade of the twentieth century, see James R. Reckner, "'A Sea of Troubles': The Great White Fleet's 1908 War Plans for Australia and New Zealand," in Stevens and Reeve, *Southern Trident*, 174-196. For planning against Spain, Britain and Japan, see Hattendorf, Simpson and Wadleigh, *Sailors and Scholars*, 45-47; and Spector, *Professors of War*, 88-96. For early Navy war planning against Japan, see Edward S. Miller, *War Plan Orange: The U.S. Strategy to Defeat Japan, 1897-1945* (Annapolis MD: Naval Institute Press, 1991). For plans against Germany, see Warner Roller Schilling, "Admirals and Foreign Policy, 1913-1919", Ph.D. diss.: Yale University, 1954); and John H. Maurer, "American Naval Concentration and the German Battle Fleet, 1900-1918," *Journal of Strategic Studies*, 6 (June 1983), 147-179. On British discussions of war with America during this period, see Gooch, "Great Britain and the Defense of Canada."

[186] In September 1889, Secretary of the Navy Benjamin Tracy directed his Chief of the Bureau of Navigation to form a "Squadron of Evolution" comprised of the three new modern unarmored steel "ABC" cruisers and the new gunboat *Yorktown*. The mission of these sail-rigged ships, when designed, had been to raid enemy commerce and protect American flag carriers. The mission of the new Squadron, however, was to meld these individual ships into a tactical fighting unit. They were to experiment at sea with the strategic, operational and tactical principles being taught and studied at the Naval War College and debated on the pages of the U.S. Naval Institute *Proceedings*, and to determine doctrine for employing the New American Steel Navy. A few other new ships were also temporarily assigned to the Squadron in 1891. During its first year, the Squadron deployed to Europe, where such "Squadrons of Evolution" had been a common naval concept for decades, and to South America. The American version lasted, however, only until 1892, when it was merged with the North Atlantic Squadron, after having been deployed again to South America, but this time as part of an operating force during a war scare with Chile. It is an important early example of the usual fate of U.S. Navy units solely dedicated initially to experimentation. On the Squadron of Evolution, see Paolo E. Coletta, *A Survey of U.S. Naval Affairs, 1865-1917* (Lanham MD: University Press of America, 1987), 38-40; and Robison and Robison, *A History of Naval Tactics*, 728.

[187] On the steps to consolidate the American fleet in the North Atlantic, see Maurer, "American Naval Concentration and the German Battle Fleet."

[188] The concentration against Chile included the chartering of the steamship *Ohio* to serve as a floating machine shop and sea base to support the forward deployed warships. Each of these concentrations, like that a few years later for the Spanish-American War, proved to be brief. Following each event, the squadrons dispersed again to their stations around the globe. See William R. Braisted, *The United States Navy in the Pacific, 1897-1909*, (Austin TX: University of Texas Press, 1958), 116-7. On the Brazilian crisis, see James F. Vivian, "United States Policy During the Brazilian Naval Revolt, 1893-94: The Case for American Neutrality," *The American Neptune* 41 (October 1981), 245-61. On the Chilean War Scare of 1891-2, see Joyce S. Goldberg, *The* Baltimore *Affair* (Lincoln NB: University of Nebraska Press, 1986). On *Ohio*, see Alden, "Growth of the New American Navy," in *Naval Engineering and American Seapower*, ed. King, 44.

[189] On U.S. Navy operations against the Ottomans in the 1890s, see Still, *American Sea Power in the Old World*, 113-32.

[190] The squadrons that came together for the 1902-3 exercises were the North Atlantic, South Atlantic, and European. The exercise had both training and crisis response purposes. On the relationship between the exercises and the Venezuelan crisis, see Edmund Morris, *Theodore Rex* (New York: Random House, 2001), 177-191 and 630-641; and idem, "'A Matter of Extreme Urgency:' Theodore Roosevelt, Wilhelm II, and the Venezuela Crisis of 1902," *Naval War College Review* 55 (Spring 2002), 73-85. For an analysis of the fleet's exercises during the presidency of Theodore Roosevelt, see James R. Reckner,

"Enter Mahan and Roosevelt: Consolidating and Surging the Battle Fleet: A New Approach and its Effect on US Navy Forward Presence," unpublished paper prepared for the U.S. Navy Forward Presence Bicentennial Symposium, Alexandria VA, The CNA Corporation, June 21, 2001.

[191] The period saw a major jump in the size and importance of the Marines. Never numbering more than four thousand officers and men during the entire nineteenth century, including the height of the Civil and Spanish-American Wars, the Marines grew to more than five thousand in 1900 and more than seven thousand by 1905. Reflecting this growth, the statutory rank of the commandant of the Marine Corps was raised to brigadier general in March 1899 and to major general in July 1902 - a situation that would endure until World War II. (During this period the Navy had no officers ranking higher than rear admiral except Admiral of the Navy George Dewey, the hero of the battle of Manila Bay and President of the General Board of the Navy). During the Spanish-American War, a Marine battalion had seized Guantanamo Bay in Cuba to provide a coaling station for the U.S. fleet off Santiago. From then on, they became pre-occupied with developing doctrine for the seizure and defense of advanced naval bases. On the Marines' new focus, see Shulimson, *The Marine Corps' Search for a Mission*; idem, "The Influence of the Spanish-American War on the U.S. Marine Corps", in *Theodore Roosevelt, the U.S. Navy, and the Spanish-American War*, ed. Edward J. Marolda (New York: Palgrave, 2001); and Graham A. Cosmas and Jack Shulimson, "The Culebra Maneuver and the Formation of the U.S. Marine Corps's Advance Base Force, 1913-14," in *Assault from the Sea*, Bartlett, ed., 121-3. Also, as the United States acquired possessions, protectorates and special concessions in the Caribbean "Near Abroad" and the Far East, the Marines became used as colonial infantry. Starting with the Philippine War, Marine interventions became larger and larger, the Marines stayed ashore longer and longer, and their military functions while ashore became more demanding and complex.

[192] In the summer of 1904, during the American presidential campaign season, President Roosevelt deployed to the Straits of Gibraltar area six first-class battleships and eight cruisers of the North Atlantic Fleet's Battleship Squadron, plus the three-cruiser European Squadron and the two-cruiser, two-gunboat South Atlantic Squadron. Originally deployed to impress Europeans and Turks, they soon were used in a crisis over the disintegrating state of Morocco, where an American citizen had been kidnapped. Following resolution of that crisis, the battleships and other units were deployed as originally intended, to intimidate the Sultan of Turkey during a crisis over missionary school rights. See William J. Hourihan, "Marlinspike Diplomacy: The Navy in the Mediterranean, 1904," Naval Institute *Proceedings* 105 (January 1979), 42-51; Still, *American Sea Power in the Old World*, 164-170; and Seward W. Livermore, "The American Navy as a Factor in World Politics, 1903-1913," *American Historical Review*, 63 (July 1958), 869-870.

[193] An executive order transferred a number of revenue cutters to the Navy for the duration of the war, for port defense and coastal patrols. The Navy also deployed an Auxiliary Naval Force of coast defense craft off the major ports for harbor defense. See Siegel, *The Wartime Diversion of U.S. Navy Forces.*

[194] Even the new *Oregon* deployed from the Pacific Coast 15,000 miles around Cape Horn to join the North Atlantic Squadron off Cuba. On the inter-relationships during the war between the U.S. Navy's actual employment strategy and the innovations and innovators in that navy, see Christman, "The Spanish-American War: First Exam for the New Navy," chap. in *Naval Innovators*, 357-365.

[195] At one point, the "Eastern Squadron" was within twenty-four hours of deploying for Spain. The "Eastern Squadron" plans were reminiscent of the squadron deployments to the Mediterranean during the Barbary Wars, and were precedent for the deployments of the consolidated Atlantic Fleet after 1905, including the cruise of the Great White Fleet. See William J. Hourihan, "The Fleet That Never Was: Commodore John Crittenden Watson and the Eastern Squadron," *American Neptune*, 41 (April 1981), 93-109.

[196] The European Squadron led an iffy existence throughout this period. It had been disbanded from 1889 to 1893, and again from 1898 to 1901. Still, *American Sea Power in the Old World*, 89-90 and 136.

[197] On the war with Spain, see Michael J. Crawford, Mark L. Hayes, and Michael D. Sessions, *The Spanish-American War: Historical Overview and Select Bibliography* (Washington DC: Department of

the Navy, Naval Historical Center, 1998); Albert A. Nofi, *The Spanish-American War, 1898* (Conshohocken PA: Combined Books, 1996); David F. Trask, *The War with Spain in 1898* (New York: MacMillan, 1981); James C. Bradford, ed., *Crucible of Empire: The Spanish-American War and its Aftermath* (Annapolis MD: Naval Institute Press, 1993; and Edward J., Marolda, ed., *Theodore Roosevelt, the U.S. Navy, and the Spanish-American War*, (New York: Palgrave, 2001).

[198] The Army, like the Marines, was pre-occupied during the latter part of this period with its new colonial missions overseas. 20,000 American troops were stationed in the Philippines during the Philippine War (1899-1902). The Army - again, like the Marines - also fought in China during the Boxer Rebellion. In addition to its MOOTW and combat duties overseas, the Army had major military government duties in the Philippines and periodically in Cuba. On the Army during this period, see William R. Roberts, "Reform and Revitalization, 1890-1903," and Timothy K. Nenninger, The Army Enters the Twentieth Century, 1904-1917," in *Against All Enemies*, eds. Hagan and Roberts, 197-234.

[199] Eight cutters deployed with the North Atlantic Squadron to blockade Cuba. Another cutter served with Admiral Dewey at Manila Bay. Eleven cutters served in American harbors on homeland defense missions, under Army tactical control. See *U.S. Coast Guard: America's Maritime Guardian*, 23.

[200] Just prior to the war, an Army-Navy War Board was created in Washington to develop strategic recommendations. In Cuba, the Navy commander -Admiral Sampson - wanted the Army commander - General Shafter - to seize the forts of Santiago threatening his ships, while the Army commander wanted the Navy to force its way into the harbor. The acrimonious discussion became moot when the Spanish squadron sortied from Santiago harbor and was destroyed by the U.S. Navy fleet waiting outside. Elsewhere, the Navy provided escorts to Army transports landing in Puerto Rico in July 1898, and to Army transports bound for the Philippines (stopping along the way to seize the Spanish Pacific island of Guam. The Navy also loaned the Army its scout cruisers *Harvard*, *Yale* and *Columbia* -- ocean liners armed and equipped for duty with the fleet. Unneeded at the time by the Navy, these vessels could lift 1000 troops each. On the Army-Navy War Board, see Rear Admiral Albert S. Barker's autobiography, *Everyday Life in the Navy* (Boston: The Gorham Press, 1928), 273-289. On the generally effective joint operations during the war, see Graham A. Cosmas, "Joint Operations in the Spanish-American War," in *Crucible of Empire*, ed. Bradford, 102-126; idem, "Army-Navy Joint Operations in the Spanish-American War," in *Theodore Roosevelt, the U.S. Navy, and the Spanish-American War*, ed. Marolda, 31-8; and Lieutenant Commander (retired) Jonas L. Goldstein, "*Cuba Libre!* Army-Navy Cooperation in 1898," *Joint Force Quarterly* (Summer 2000), 116-121. On the joint capture of Guam, see Beers, *American Naval Occupation and Government of Guam*, 1-3. On the loan of the scout cruisers for sealift - and Army sealift generally - see Graham A. Cosmas, *An Army for Empire: The United States Army in the Spanish-American War* (Columbia MO: University of Missouri Press, 1973), 217. See also William Joe Webb, "The Spanish-American War and United States Army Shipping," *The American Neptune* 40 (July 1980), 167-91.

[201] The Joint Army and Navy Board operated under an agreement between the War and Navy Departments and was composed of senior civilian and military officials from each department. Like the World War II Joint Chiefs of Staff that superseded it, it never received statutory authorization. For a history of the Joint Army and Navy Board, see Louis Morton, "Interservice Co-operation and Political-Military Collaboration," in *Total War and Cold War: Problems in Civilian Control of the Military*, ed. Harry L. Coles (Columbus OH: Ohio State University Press, 1962), 131-60. See also Steven T. Ross, *American War Plans: 1919-1941*, vol. 1 (New York: Garland Publishing, 1992), ix-xx.

[202] Upon its establishment, the Joint Army and Navy Board began preparing a series of color-coded joint war plans against potential hostile nations. Thus the Joint Army and Navy Board took on many of the functions relating to planned employment strategy that had previously been resident at the war colleges. See Colonel Adolf Carlson, *Joint U.S. Army-Navy War Planning on the Eve of the First World War: Its Origins and its Legacy* (Carlisle Barracks PA: U.S. Army War College Strategic Studies Institute, February 16, 1998); and Ross, *American War Plans: 1919-1941*, ix-xx.

[203] The General Board of the Navy was a permanent board of senior admirals. Its first president was Admiral George Dewey, the hero of the battle of Manila Bay. It continued in existence until the 1950s. Earlier, in 1891, the civilian political office of Assistant Secretary of the Navy, abolished in 1869, had been re-established. Theodore Roosevelt was the incumbent in 1898, at the start of the Spanish-American War.

[204] In 1902 and 1903, the first major joint exercises were held off New England, to test the ability of the Army to defend the American coastline and the Navy to operate against a hostile shore. The Army received its first mine planters, to plant controlled underwater minefields, in 1904. On the joint exercises, see Atwater, "United States Army and Navy Development of Joint Landing Operations," 51. On Army controlled mines for harbor and naval base defense, see Charles H. Bogart, *Controlled Mines: A History of their Use by the United States* (Bennington VT: Weapons and Warfare Press, 1986). On the Army mine planter fleet, see K. L. Waters, "The Army Mine Planter Service," *Warship International* (no. 4, 1985), 400-11.

[205] On the deployment to Samoa in 1888-9, see Paul M. Kennedy, *The Samoan Tangle: A Study in Anglo-German-American Relations, 1878-1900* (New York: Barnes and Noble, 1974).

[206] On the generally excellent Army-Navy relations in carrying out the pacification of the Philippines, see Brian McAllister Linn, *The Philippine War, 1899-1902* (Lawrence KS: University of Kansas Press, 2000); and idem, "Joint Operations in the Days of Empire," in *Selected Papers*, ed. Bittner, 81-94. See also Braisted, "The Conquest of the Philippines," chap. in *The United States Navy in the Pacific, 1897-1909*, 64-74.

[207] In the summer of 1900, 36 ships from eight nations, including the United States, under the operational control of a Royal Navy admiral, landed sailors, Marines and soldiers in North China to participate in the defense and relief of the foreign legations in Beijing. As part of this tangled ad hoc joint and coalition effort, a portion of the Asiatic Squadron established a forward presence offshore and landed American sailors and Marines as an enabling force. The Marines were later reinforced by U.S. Army troops. This joint American force participated in subsequent coalition ground operations, under Marine command. More U.S Army troops now joined the operation, and a larger Army-led American joint force was formed, under overall British command, for a successful coalition assault on Beijing. See Braisted, "The Navy and the Boxers," chap. in *The United States Navy in the Pacific, 1897-1909,* 75-114.

[208] U.S. Navy patrols began on the Yangtze in 1903. Based at Shanghai, Asiatic Fleet gunboats began to patrol the river through the large cities of Nanking, Hangkow and Chungking, reinforced periodically by cruisers and destroyers. See Tolley, *Yangtze Patrol*.

[209] On the operations off Lebanon to calm unrest in Beirut - then occupied by the Ottoman Turks - see Anne Cipriano Venzon, "Gunboat Diplomacy in the Med," Naval Institute *Proceedings*, 1985 Supplement, 26-31; and William J. Hourihan, "The Big Stick in Turkey: American Diplomacy and Naval Operations against the Ottoman Empire, 1903-1904," *Naval War College Review* 34 (September-October 1981), 78-88. On President Theodore Roosevelt's use of the Navy in intervening in Panama, see Morris, *Theodore Rex*, 280-293 and 673. Marines were landed in Panama in 1903 to protect the railway. They stayed on in Panama until 1914 to ensure the success of the Panamanian revolution and the security of the Canal Zone and the digging of the Canal. See John Nikol and Francis X. Holbrook, "Naval Operations in the Panama Revolution, 1903," *American Neptune*, 37 (1977), 253-261; and Richard W. Turk, "The United States Navy and the 'Taking of Panama,' 1901-1903," *Military Affairs* 38 (September 1974), 92-96.

[210] On the Asiatic Squadron in the 1890s and early twentieth century, see Braisted, *The United States Navy in the Pacific, 1897-1909*.

[211] In December 1903, President Roosevelt ordered all squadrons in the Atlantic to the Caribbean, all Pacific Squadron ships to Magdalena Bay in Mexico, and the major portion of the Asiatic Squadron to Hawaii, to forestall European interference in Panama

[212] In the summer of 1903, President Roosevelt deployed Rear Admiral Charles Cotton and the four cruisers of the European Squadron to Marseilles, in a major naval diplomatic demonstration of amity with

and support for France. Cotton visited Paris and consorted with the President of France and the visiting King of England. He then took his cruisers to Kiel, Germany for Regatta Week and a visit with the Kaiser, joining a North Atlantic Squadron battleship there, and then on to a naval review at Portsmouth, England, where he dined with the King. On this unprecedented European cruise, see William J. Hourihan, "The Best Ambassador: Rear Admiral Cotton and the Cruise of the European Squadron, 1903," *Naval War College Review* 32 (June-July 1979), 63-72; Still, *American Sea Power in the Old World*, 147-150; and Livermore, "The American Navy as a Factor in World Politics," 864-9.

[213] An ardent navalist, in 1882 Roosevelt had published an important book on naval power and the War of 1812. (On just how important, see Michael Crawford, "The Lasting Influence of Theodore Roosevelt's *Naval War of 1812*" *International Journal of Naval History*, 1 (April 2002),). Just before the Spanish-American War, as Assistant Secretary of the Navy in the first McKinley Administration, he had positioned Admiral George Dewey and the Asiatic Squadron to attack Manila Bay just before the start of the Spanish-American war. Elected vice president under McKinley in 1900, he succeeded to the presidency in September 1901 upon McKinley's assassination. Elected president in his own right in 1904, he served in the White House until March 1909. He took a keen interest in the size, shape and use of the Navy. His presidency not only saw an enormous battleship building program, but also fleet consolidation, an intensive fleet exercise program, and extensive fleet surge deployments as diplomatic tools.

1905-1914 deployment strategy

[214] Samuel Huntington described the first stage of American national security policy as the "Continental Phase," when seapower played a subordinate role in the implementation of national policy. Starting in the 1890s, however, he saw the role of the Army in implementing national policy as secondary to that of the Navy. This was Huntington's "Ocean Phase." See Huntington, "National Policy and the Transoceanic Navy," 483-493. For an overview of this era, see Richard W. Turk, "Defending the New Empire, 1900-1914," in *In Peace and War*, ed. Hagan, 186-204.

[215] The number of submarines in the fleet jumped from eight in 1905 to 36 in 1914. The number of destroyers went from 16 to 50 in the same period. Figures are from Naval Historical Center, *Active Ship Force Levels*. For a listing of additions and losses to the fleet during this period, see Pratt, *Our Navy*, 448-9. Navy personnel end strength rose from less than 34,000 in 1905 to about 57,000 in 1914, just shy of the end strength of the Union Navy at its peak in 1865. The Marine Corps also continued to grow during this period, from 7000 in 1905 to over 10,000 in 1916. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46. In 1911, the first permanent Marine Corps regiments were organized. Over the next few years, several brigades were formed, more or less as task forces for specific missions. Prior to this, the largest permanent Marine Corps organizations had been companies. See Nofi, "The Principal Units of the Marine Corps," chap. in *The Marine Corps Book of Lists*, 77.

[216] In 1900, the U.S. Navy had moved from sixth to fourth place; in 1906 to third; and in 1907 to second place, behind the Royal Navy. This position was maintained until 1911, when Germany pushed ahead into second place. By the outbreak of World War I in 1914, the United States had fallen to fourth place behind France, due to the gigantic European naval arms race. Rankings are from Still, *American Sea Power in the Old World*, 137-8.

[217] It can be argued that Roosevelt, in abolishing squadrons and consolidating the fleet, was only following the British example. In 1904, Admiral Sir John Fisher, the new First Sea Lord, had abolished the British South Atlantic and Pacific Squadrons and slashed the forces allocated to other Royal Navy forward stations, including the North America and West Indies Stations. See Albion, "Distant Stations," 272.

[218] The South Atlantic Squadron had been disestablished in December 1904, when the last U.S. warships left Bahia and Pernambuco, Brazil. The European squadron was dissolved in 1905. The new consolidated Atlantic Fleet came into being on January 1, 1906, divided into squadrons of battleships, cruisers and coast defense ships.

[219] The main fighting arm of the new Pacific Fleet was its cruiser squadrons. The battleships withdrawn from the old Asiatic Squadron went to reinforce the new Atlantic Fleet. With the destruction of Russian naval power by the Japanese Navy at Tsushima in 1905, the battleships were deemed no longer needed in the Western Pacific. See Maurer, "American Naval Concentration", 155-156. Also, withdrawing the battleships prevented their being overwhelmed by a possible Japanese attack. See Braisted, *United States Navy in the Pacific,* 188. On the Navy in the Pacific during this period, see idem, *The United States Navy in the Pacific, 1909-1922* (Austin TX: University of Texas Press, 1971).

[220] The change from dividing the fleet by geographic area to dividing it by ship type and function was capped in 1913 by a change in Navy Regulations, which now declared that "the word 'fleet' shall denote the aggregation of forces of various classes of vessels In one organization under one commander"; and "A Force is the major sub-division of a fleet. It is composed of all vessels of the fleet that are of the same type or class or that are assigned to the same duty".

[221] The routine of the Atlantic and Pacific fleets was exercising its capabilities off the east coast and in the Caribbean - especially the development of tactics to use optimally the new technical innovations that were pouring into the fleet during this period.

[222] For the best treatment of the surge deployment strategy of the era, see Livermore, "American Navy as a Factor in World Politics," 863-879. For a contemporary interpretation, see Reckner, "Enter Mahan and Roosevelt."

[223]Roosevelt saw the deployment as a necessary diplomatic tool of the nation. The Navy's officers saw it - more narrowly - as detracting from fleet exercises and readiness for war. The ships of the Great White Fleet departed from Hampton Roads in December 1907 and did not return until February 1909. No cruise of this length had ever been attempted by steam-powered, steel battleships. The fleet completed a deployment of 46,000 miles without a single serious breakdown. The need to rely on foreign bases and suppliers for coal, however, provided a powerful impetus to devising ways to coal at sea, and eventually switching to oil for fuel. For an analysis of the cruise, see James R. Reckner, *Teddy Roosevelt's Great White Fleet* (Annapolis MD: Naval Institute Press, 1988). For an example of the opposition of naval officers to the deployment, see idem, "Teddy's 'Ollie' and the Teflon Admiral: William S. Sims vs. Robley D. Evans in Theodore Roosevelt's Navy," in *New Interpretations in Naval History*, Love et al., eds., 207-8. See also Livermore, "American Navy as a Factor in World Politics," 878, fn.76.

[224] Roosevelt deployed the Atlantic Fleet's Third Division to Gibraltar in support of the British during the 1906 international Algeciras Conference, in Spain. The conference dealt with German aspirations for a naval coaling station in Morocco, which *inter alia* would be necessary to sustain German fleet operations in the Americas. The United States, therefore, sought to quash those aspirations. See Livermore, "American Navy as a Factor in World Politics," 871-2.

[225] In November and December 1910 - after a fleet concentration at New York - President Taft deployed 16 battleships, two armored and two scout cruisers, several destroyer divisions, and some auxiliaries for six weeks to Britain and France, followed by a redeployment back across the Atlantic for annual fleet exercises off Guantanamo Bay, Cuba. See Livermore, "American Navy as a Factor in World Politics," 873-4; *Annual Reports of the Navy Department for the Fiscal Year 1910* (Washington DC: Government Printing Office, 1910), 20, 57 ff.; and *Annual Reports of the Navy Department for the Fiscal Year 1911* (Washington DC: Government Printing Office, 1912), 28-29, 33-34, 73 ff.

[226] In 1911, the Second Division of the Atlantic Fleet was deployed to various Baltic ports. The original purpose had been to improve relations with Germany. Later, Cronstadt, Copenhagen, and Stockholm were added for diplomatic reasons. See Still, *American Sea Power in the Old World*, 147, 152; and Livermore, "American Navy as a Factor in World Politics," 874-7.

[227]Livermore, "American Navy as a Factor in World Politics," 878; and *Annual Reports of the Navy Department for the Fiscal Year 1913* (Washington: Government Printing Office, 1914), 38. During the Balkan Wars and after the outbreak of World War I, the United States deployed small cruiser squadrons to the Mediterranean to protect U.S. citizens and their property, and to evacuate Turkish Jews. See Still, *American Sea Power in the Old World.*

[228] In a major American intervention, a large naval squadron, acting as an enabling force, bombarded and seized the port of Vera Cruz, then turned occupation duties over to the Army. This operation saw the first operational forward deployment and employment of naval aviation, when aircraft from Navy warships were used to observe Mexican positions. See Jack Sweetman, *The Landing at Veracruz: 1914* (Annapolis MD: Naval Institute Press, 1968); and Colonel James H. Alexander, U.S. Marine Corps, "Roots of Deployment -- Vera Cruz, 1914,", in *Assault from the Sea*, ed. Bartlett, 88-94. At the same time, *West Virginia*, with the Fourth Marine Regiment embarked, stood off Mazatlan on the Mexican west coast.

[229] Livermore, "The American Navy as a Factor in World Politics," 878.

[230] This "three-way-stretch" (among competing demands for combat-credible surge forward deployments, forward MOOTW, and preparations at home for future war) would foreshadow that facing the Navy in the post-Cold War decade (see below).

[231] The Marines during this period deployed for interventions in battalion to brigade-sized units. In 1911, the first permanent Marine Corps regiments were organized. Over the next few years, several brigades were formed, more or less as task forces for specific missions. Prior to this, the largest permanent Marine Corps organizations had been companies. See Nofi, "The Principal Units of the Marine Corps," chap. in *The Marine Corps Book of Lists*, 77. In 1914, the Marines that had been in Panama since 1903 were replaced by U.S. Army units. The landing of Marines in Cuba in 1906 was an enabling action followed by a U.S. Army of Cuban Pacification. On the Marine hand-off of responsibilities in Panama to the Army, see Charles Morris, *Security and Defense of the Panama Canal, 1903-2000* (Balboa Heights, Panama: Panama Canal Commission Printing Office, 1974), 3.

[232] The Ice Patrol was set up in reaction to the *Titanic* disaster of the previous month. The Revenue Marine assumed American Ice Patrol responsibilities when an International Ice Patrol was established in 1914. The Revenue Marine and the U.S. Lifesaving Service were combined in 1915 to form the Coast Guard, under the Secretary of the Treasury. The Act creating the Coast Guard designated it as "a part of the military forces of the United States". See Robert Erwin Johnson, *Guardians of the Sea: History of the United States Coast Guard, 1915 to the Present* (Annapolis MD: Naval Institute Press, 1987); and Captain Patrick H. Roth (Retired) with Richard Kohout, *U.S. Coast Guard: Purpose, Characteristics, Contributions, and Worth to the Nation* , CRM 97-17 (Alexandria VA: Center for Naval Analyses, May 1997).

[233] War plans, such as War Plan Black, were the products of the Joint Army and Navy Board. On the Navy and War Plan Black, see Schilling, "Admirals and Foreign Policy"; and Maurer, "American Naval Concentration and the German Battle Fleet, 1900-1918". The Germans had indeed written naval war plans around the turn of the century to attack the American East Coast. See Holger H. Herwig, *Politics of Frustration: The United States in German Naval Planning, 1889-1941* (Boston: Little, Brown and Company, 1976), 42-91; and Carl Axel Gemzell, *Organization, Conflict and Innovation: A Study of German Naval Strategic Planning, 1888-1940* (Lund, Sweden: Esselte Studium, 1973). War planning was also conducted against Japan and other potential threats, large and small. On global joint war planning, see Carlson, *Joint U.S. Army-Navy War Planning on the Eve of the First World War*. On the Orange plans against Japan, see Miller, *War Plan Orange*; and Brian Linn, *Guardians of Empire: The U.S. Army and the Pacific, 1902-1940* (Chapel Hill NC: University of North Carolina Press, 1997). On the Japanese counterparts to War Plan Orange, and the Japanese threat to the Philippines, Guam, Wake and the U.S. Navy in the western Pacific, see Evans and Peattie, *Kaigun.*

[234] The combat-credible surge deployment strategy of the period aroused considerable criticism within the Navy itself. Professional opinion preferred a strategy of concentration and exercising for future war,

similar to that of the interwar period a decade later. See Livermore, "The American Navy as a Factor in World Politics," 878.

[235] Two Navy officers - Admiral Charles Thomas and Captain C.S. Sperry (who later would command the Great White Fleet on its cruise) participated in the 1905-1906 joint National Coast Defense Board chaired by Secretary of War William Howard Taft (the "Taft Board"), which downplayed the potential role of the Navy and afloat systems for homeland defense. Naval officers also served on the joint Panama Fortifications Board of 1910. On the Taft Board, see Browning, *Two if by Sea*, 183-187; and Hamburger, "Technology, Doctrine and Politics of U.S. Coast Defenses," 166-169. Movements to merge the Army Coast Artillery into the Navy during this era periodically occurred, but were quashed. Neither service was ever enthusiastic. See Hamburger, 213-221, 257.

[236] In 1907-8, the credibility of the Joint Army and Navy Board with President Roosevelt was seriously damaged by the parochial attitudes of the services in failing to agree on defense of a Philippine base. It had little influence with President Taft. President Wilson suspended its activities in 1913, after it pushed too hard to change his mind regarding a cruiser redeployment from China he opposed, during a crisis with Japan. From July 1903 to December 1913, the Joint Board met about 125 times. Only eight meetings were held between October 1915 and June 1918. See Braisted, *United States Navy in the Pacific, 1897-1909*, 204-39; and idem, *United States Navy in the Pacific, 1909-1922*, 132-5; and Ross, *American War Plans, 1919-1941*, ix.

[237] The first joint amphibious doctrine - "Rules for Convoy of Military Expeditions" - appeared in 1906 - a product of war college drafting and Joint Army and Navy Board re-drafting and approval. See Atwater, "United States Army and Navy Development of Joint Landing Operations", 22-24.

[238] "The Culebra maneuver" was part of the fleet's annual winter exercises. The Marines had created an Advanced Base Force - a proto-amphibious task force - in 1913. See Cosmas and Shulimson, "The Culebra Maneuver and the Formation of the U.S. Marine Corps's Advance Base Force, 1913-14, in *Assault from the Sea*, ed. Bartlett, 121-132.

1914-1917 deployment strategy

[239] The phrase is adapted from Bernard Cole's apt characterization of the period between the world wars: "The Battle Fleet Trains While the Gunboats Fight."

[240] Navy force level figures are from Naval Historical Center, *Active Ship Force Levels*. For a listing of additions and losses to the fleet during this period, see Pratt, *Our Navy*, 448-9. Navy personnel end strength rose from about 57,000 in 1914 to more than 60,000 in 1916, surpassing the end strength of the Union Navy at its peak in 1865. Marine Corps end strength stayed at about 10,000 throughout these three years. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46.

[241] By 1916, both Haiti and the Dominican Republic had Marine Corps brigades deployed there. The Dominican landings of 1916 were followed by the appointment of Captain Harry S. Knapp as military governor of the country. U.S. Navy and Marine Corps officers ran the country until 1926. See Captain Stephen M. Fuller, USMCR, and Graham A. Cosmas, *Marines in the Dominican Republic, 1916-1924* (Washington DC: History and Museums Division, Headquarters, U.S. Marine Corps, 1974); and Condit et al. *A Brief History of Headquarters Marine Corps Staff Organization*, 6-97.

[242] It was the Navy that took possession of the islands for the United States, and that administered the territory for the nation until 1931

[243] On the uniformed Navy's emphasis on fleet exercises, see, for example, the language in *Annual Reports of the Navy Department for the Fiscal Year 1915* (Washington DC: Government Printing Office, 1916), 12-13, regarding "its desire to keep the main organizations of the fighting fleet practically intact and free from all service which would divert them from the real goal of all peace-time activity --

perfection of the whole fleet as an instrument of war. This condition can be approached only through the constant association together of all fleet elements in exercises whereby each part may learn its task and know how to coordinate its efforts to secure unity of action of the whole . . . free to carry out uninterrupted a very comprehensive program of drills, target practice, and fleet tactical and strategic maneuvers."

[244] On the joint Aeronautical Board and its many sub-committees and cases considered, see Adrian O. Van Wyen, *The Aeronautical Board: 1916-1947* (Washington DC: Deputy Chief of Naval Operations (Air) History Unit, 1947).

[245] The 1906 "Rules for Convoy of Military Expeditions" were revised in 1917 and remained in continuous use until 1926. See Atwater, "United States Army and Navy Development of Joint Landing Operations", 22-24.

1917-1919 deployment strategy

[246] Despite its building program, the U.S. Navy still ranked behind the warring British and German fleets. For quantitative comparisons of the naval strength of the major powers in 1918, see Christopher Bell, *The Royal Navy, Seapower and Strategy Between the Wars* (Stanford CA: Stanford University Press, 2000), 8.

[247] On the differences between the planned pre-war deployment and employment strategies for the fleet and its actual wartime deployment and employment strategies, see Maurer, "American Naval Concentration," 167-177.

[248] On U.S. Navy strategy and policy relating to World War I, see Michael Simpson, "Maritime Strategy and the Crucible of War: The Impact of World War I on American Naval Policy, 1914-1921," in *Aspects of War in American History*, eds. David K. Adams and Cornelis A. van Minnen (Keele (UK): Keele University Press, 1997), 149-172. See also David F. Trask, "The American Navy in a World at War, 1914-1919," in *In Peace and War*, ed. Hagan, 205-20.

[249] America by now was an economic colossus. In 1914, with a national income of $37 billion, the United States had a larger economy than Britain, France, Germany and Russia combined. America produced more oil, pig iron and steel than the next three countries combined, and more motor vehicles than the rest of the world together. See Kennedy, *Rise and Fall of the Great Powers*, 244.

[250] The U.S. Navy at war's end also included 110 destroyers and 44 submarines. By July, 1919, the total had only gone down to 752 active warships, and the number of destroyers and submarines actually increased, as wartime construction entered the fleet. Figures are from Naval Historical Center, *U.S. Navy Active Ship Force Levels*. For a listing of additions and losses to the fleet during this period, see Pratt, *Our Navy*, 450-451. Navy personnel numbers soared from 60,000 in 1916 to 448,606 in 1918, before dropping to 272,144 in 1919. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46.

[251] The U.S. Navy's contribution to the allied war effort was small but not negligible. At the height of American participation, the U.S. Navy contributed nearly a quarter of all allied naval aviators, a third of all escorts and minesweepers in French waters, and 14 percent of allied destroyers in British and Eastern Atlantic waters. For a fuller appreciation of the American naval contribution, see Labaree et al., *America and the Sea*, 481; and see Thomas G. Frothingham, *The Naval History of the World War: The United States in the War, 1917-1918* (Cambridge: Harvard University Press, 1927), 285.

[252] Since Britain lacked sufficient oil fuel reserves, the U.S. Navy deployed coal-burning battleships to Britain, keeping its modernized oil-burners at home. On the forward operations of the U.S. Navy's battle fleet during World War I, see Jerry W. Jones, *U.S. Battleship Operations in World War I* (Annapolis MD: Naval Institute Press, 1998).

[253] The world wars were the only wars in which the entire Coast Guard as a service was transferred to Navy control. In other wars, only individual cutters were transferred, as needed. During World War I, the Navy deployed six Coast Guard cutters to Europe for escort and patrol duty. Others cutters performed similar naval tasks off America's coasts. In June 1917, an Espionage Act gave the Coast Guard power to protect merchant shipping in U.S. ports from sabotage, transferring a responsibility previously belonging to the Army Corps of Engineers. As a result, the first U.S. Coast Guard Captain of the Port positions were created in U.S. harbors. See Robert M. Browning, Jr., "Captains of the Port," (Washington DC: U.S. Coast Guard Historian's Office, 1993). In 1919, the Navy tried to retain the Coast Guard under its control, but was rebuffed, and the service was returned to the Treasury Department.

[254] In July 1918, the cruiser *San Diego* was torpedoed by a German submarine off the East Coast while on convoy duty. This was the only major U.S. Navy warship lost during the war.

[255] The total inventory of U.S. Navy aircraft had shot up from 54 in April 1917 to 2107 in November 1918, including 1170 flying boats, 695 seaplanes, 242 landplanes, and 15 airships. Figures are from Grossnick, *United States Naval Aviation*, 447. By war's end, some 500 of these aircraft were deployed forward in Europe. None of these aircraft were launched from warships. Despite the installation of permanent catapults and assigned aircraft on three ships by 1917, these were removed upon American entry into the war. Catapults and aircraft did not return to the seagoing fleet until 1919, when the battleship *Texas* received an air detachment. On the new forward and homeland defense naval bases, see Ivor D. Spencer, "U.S. Naval Air Bases from 1914 to 1939," Naval Institute *Proceedings* 75 (November 1949), 1242-55. On shipboard aircraft and catapults, see William T. Larkins, *Battleship and Cruiser Aircraft of the United States Navy, 1910-1949,* (Atglen PA: Schiffer Military/Aviation History Publishing, 1996), 8-11.

[256] In the Caribbean - America's "Near Abroad" - an eight-vessel Patrol Force detachment was established in July 1917 to guard American and allied interests there. It faced little hostile activity, however, as the Germans did not deploy submarines south of Cape Hatteras.

[257] The Pacific Fleet was so denuded of ships that the United States had to use the allied Japanese Navy to investigate reports of German raider activity off Hawaii.

[258] On the sudden growth of the U.S. Merchant Marine, see Gibson and Donovan, "The Vortex of War and it Aftermath, 1914-1930," chap. in *Abandoned Ocean*, 103-24; and Jeffrey J. Safford, "Anglo-American Maritime Relations during the Two World Wars: A Comparative Analysis," *The American Neptune* 41 (1981), 262-79.

[259] The Cruiser and Transport Force carried 46% of the more than two million American troops who deployed to Europe during the war. 48% were carried in British vessels. All American sealift ships required warship escorts. The Cruiser and Transport Force included 42 sealift ships and 24 battleships, cruisers, destroyers, converted yachts, and other vessels. The separately organized Navy-manned Naval Overseas Transportation Service (NOTS) fleet numbered 453 cargo ships by war's end. The Cruiser and Transport Force and NOTS replaced the Naval Auxiliary Service, which had been created in 1905. They were in turn replaced by the Naval Transportation Service in 1920. See Vice Admiral Albert Gleaves, *A History of the Transport Service*: *Adventures and Experiences of United States Transports and Cruisers in the World War* (New York: George H. Doran Company, 1921); and Lewis P. Clephane, *History of the Naval Overseas Transportation Service in World War I* (Washington DC: Naval History Division, 1969).

[260] On the deployment of U.S. Navy guns to the Western front, see *The United States Naval Railway Batteries in France*, reprint ed. (Washington DC: Naval Historical Center, 1988).

[261] The Joint Army-Navy Technical Board was set up in 1917 at the instigation of Secretary of the Navy Daniels to standardize service aircraft designs, to ensure rapid and efficient domestic production of military and naval aircraft. On the Joint Army-Navy Technical Board and other World War I joint aviation boards, see Noel C. Shirley, United States naval aviation, 1910-1918 (Atglen PA: Schiffer Military History, 2000), 27-37, 85; and I.B. Holley, *Ideas and Weapons*, reprint edn. (Washington DC: Air Force Museums Program, 1997), 40-53, 67-75.

[262] Recall that President Wilson had suspended the Joint Army and Navy Board in 1914. It would remain suspended until 1919.
[263] The 4th Marine Brigade was part of the first American ground contingent to deploy on the line in France, in March 1918, and in June served as part of the U.S. Army's Second Division in the Battle of Belleau Wood, acquitting itself superbly. Marine Corps Major General John A Lejeune later took command of the Second Division, including its Army troops, as part of the American First Army's St. Mihiel Offensive of September and October 1918. The Marine Corps also deployed the 5th Marine Brigade and the 10th Marines overseas as well, in the hope of forming an all-Marine division. The project, however, was opposed by the Army and never bore fruit. See Nofi, *Marine Corps Book of Lists*, 78.
[264] On the deployments to Murmansk, see Henry P. Beers, *U.S. Naval Forces in Northern Russia (Archangel and Murmansk), 1918-1919* (Washington DC: Navy Department, Office of Records Administration, November 1943). On the deployments to Vladivostok, see Braisted, "The Siberian Intervention,", Book IV in *The United States Navy in the Pacific, 1909-1922*, 341-406.
[265] The Atlantic Cruiser Squadron and other units landed Marines in Cuba at various times during 1917, and continued to deploy warships in support of the Marine Occupation of Haiti and the Dominican Republic.
[266] The American battleships at Scapa Flow became the British Grand Fleet's Sixth Battle Squadron. On British-American naval relations during the war, see David F. Trask, *Captains and Cabinets; Anglo-American Naval Relations, 1917-1918* (St. Louis MO: University of Missouri Press, 1972); and Michael A. Simpson, ed., *Anglo-American Naval Relations, 1917-1919*, (London: Scolar Press, 1991). On U.S. Navy-Royal Navy relations among destroyermen, see William H. Langenberg, "'Pull-Together' The Queenstown Naval Command of World War I," *Sea History*, 99 (Winter 2001-2), 7-10.
[267] Controversy raged during 1917 and 1918 on the extent to which U.S. Navy units should submit to Royal Navy operational control. The Commander, United States Naval Forces Operating in European Waters, VADM William Sims, was for it; CNO Admiral William Benson was opposed. The destroyers in Ireland and the battleships at Scapa Flow were refitted completely with British wireless equipment and followed Royal Navy procedures entirely. See David F. Trask, *Captains and Cabinets; Anglo-American Naval Relations, 1917-1918* (Columbia MO: University of Missouri Press, 1972); and Dean C. Allard, "Anglo-American Naval Differences During World War I," *Military Affairs* 44 (April 1980), 75-81.

1919-1922 deployment strategy

[268] On the limited effect of its World War I experience on subsequent U.S. Navy strategic thinking, see George Baer, "U.S. Naval Strategy 1890-1945," *Naval War College Review*, 44 (Winter 1991), 14.
[269] On Navy force levels during this period, see Naval Historical Center, *U.S. Navy Active Ship Force Levels*. For a listing of additions and losses to the fleet during this period, see Pratt, *Our Navy*, 451-2. Navy personnel end strength dropped from more than 448,000 in 1918 to less than 273,000 in 1919 to about 100,000 in 1922. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46.
[270] On the importance of the Merchant Marine windfall to Navy logistics planning, see William R. Braisted, "The Evolution of the United States Navy's Strategic Assessments in the Pacific, 1919-31," in *The Washington Conference, 1921-22: Naval Rivalry, East Asian Stability and the Road to Pearl Harbor*, eds. Erik Goldstein and John Maurer, (London: Frank Cass, 1994), 103.
[271] The Chief of Naval Operations, Admiral Benson, had created a "U. S. Fleet" in January 1919, essentially by re-naming the Atlantic Fleet, but this action was superseded six months later by Daniels's decision to divide the fleet in two. Each fleet received half the Navy's battleships and destroyers, with supporting ships and craft. The lack of modern cruisers was glaring. The old obsolescent armored

cruisers were forward deployed to European, Asian and waters. The Pacific Fleet received the more modern oil-burning warships, as oil fuel was readily available in California. Secretary of the Navy Daniels explained that the division of the fleet allowed for its immediate reconstitution as a unified tactical entity should circumstances so dictate, and touted the virtues of inter-fleet competition and rivalry. See *Annual Reports of the Navy Department for the Fiscal Year 1919* (Washington DC: U.S. Government Printing Office, 1920), 9-11. Contrast with the *Annual Report* of 1923, cited below. A Naval Transportation Service (NTS) was also created, in 1920, to replace the wartime Cruiser and Transport Force and Naval Overseas Transportation Service (NOTS). For more details on fleet organization in this period, see Lieutenant Richard W. Leopold USNR, *Fleet Organization*, 1919-1941 (1945).

[272] On Daniels's decision and his motives in dividing the fleet, see Patrick Abbazia, *Mr. Roosevelt's Navy: The Private War of the U.S. Atlantic Fleet, 1939-1942* (Annapolis MD: Naval Institute Press, 1975), 23. Navy planned employment strategy during this period emphasized both combat against Britain in the western Atlantic and against Japan in the western Pacific. On U.S Navy and Royal Navy war planning against each other during this period, see Christopher Bell, "'Main Fleet to Bermuda': Naval Strategy for an Anglo-American War," chap. in *The Royal Navy, Seapower and Strategy Between the Wars*, 48-198; ibid., "Thinking the Unthinkable: American and British Naval Strategies for an Anglo-American War, 1918-31," *International History Review*, 19 (November 1997), 789-808; Braisted, "The Evolution of the United States Navy's Strategic Assessments in the Pacific," 102-23; and idem, "On the American Red and Red-Orange Plans, 1919-1939," in *Naval Warfare in the Twentieth Century, 1900-1945: Essays in Honour of Arthur Marder*, ed. Gerald Jordan (London: Croom Helm, 1977), 167-185.

[273] On the consolidated fleet exercises of 1921 and the extensive fleet port visit program subsequently in Latin America, see Herbert Corey, "Across the Equator with the American Navy," *National Geographic* 39 (June 1921), 571-624.

[274] There is a large literature on the interwar naval arms limitation treaties, their origins and their effects. See especially Goldstein and Maurer, eds., *The Washington Conference, 1921-22*; Emily O. Goldman, *Sunken Treaties: Naval Arms Control Between the Wars* (University Park PA: Pennsylvania State University Press, 1994); Robert Gordon Kaufman, *Arms Control During the Pre-Nuclear Era: The United States and Naval Limitation Between the Two World Wars* (New York: Columbia University Press, 1990); Roger Dingman, *Power in the Pacific: The Origins of Naval Arms Limitation, 1914-1922* (Chicago: University of Chicago Press, 1976); Stephen Pelz, *The Race to Pearl Harbor: The Failure of the Second London Naval Conference and the Onset of World War II* (Cambridge MA: Harvard University Press, 1974); and T.H. Buckley, *The United States and the Washington Conference, 1921-1922* (Knoxville TN: University of Tennessee Press, 1970). For the text of the Washington Treaties, see Harold and Margaret Sprout*, Toward a New Order of Sea Power: American Naval Policy and the World Scene, 1918-192*, reprint edn. (New York: Greenwood Press, 1976), 302-17 .

[275] On the various forward deployed units of the U.S. Navy during the early interwar period, see Bernard D. Cole, "The Interwar Forward Intervention Forces: The Asiatic Fleet, the Banana Fleet, and the European Squadrons: The Battle Fleet Trains while the Gunboats Fight," unpublished paper prepared for the U.S. Navy Forward Presence Bicentennial Symposium (Alexandria VA: The CNA Corporation, June 21, 2001)

[276] As part of a larger Allied Naval Mission set up under the Armistice, the American naval mission to the Adriatic was formed in 1918 under a U.S. Navy rear admiral, reporting to the Commander, U.S. Naval Forces, European Waters. With headquarters in Split, the American zone of responsibility to preserve order stretched some 300 miles along the Croatian Dalmatian coast. See A.C. Davidonis, *The American Naval Mission in the Adriatic, 1918-1921* (Washington DC: Navy Department, Office of Records Administration, September 1943).

[277] Rear Admiral Mark Bristol became Commander, U.S. Naval Detachment in Turkish Waters in January 1919, reporting to the Commander, U.S. Naval Forces Operating in European Waters. Also named by the State Department as U.S. High Commissioner to Turkey, he was both the senior U.S. diplomatic as well

as military representative to the dying Ottoman Empire and the nascent Turkish Republic of Kemal Ataturk. His primary initial missions were humanitarian. At its peak, in 1922, the command had 20 warships assigned. See Henry P. Beers, *U.S. Naval Detachment in Turkish Waters, 1919-1924* (Washington DC: Navy Department, Naval Historical Center, 1940; idem, "American Naval Detachment - Turkey, 1919-24," *Warship International*, 3 (1976), 209-226; Admiral Bern Anderson (Retired), "The High Commissioner to Turkey," Naval Institute *Proceedings* 83 (January 1957); and Colonel William J. Ankley, US Army (Retired), "An Unaccountable Accounting," Naval Institute *Proceedings* (Supplement) (March 1985), 38-44. Army and Navy units supported each other at Murmansk and Vladivostok during 1918-1920. See Beers, "U.S. Naval Forces in Northern Russia;" John Silverlight, *The Victors' Dilemma: Allied Intervention in the Russian Civil War* (New York: Weybright and Talley, 1970); and Richard Goldhurst, *The Midnight War: The American Intervention in Russia, 1918-1920* (New York: McGraw-Hill, 1978).

[278] The Yangtze Patrol was formally created as a separate operational unit in 1919, although the U.S. Navy deployments on the river had begun much earlier, as discussed above. See Tolley, *Yangtze Patrol.* Operations of the Asiatic Fleet at Vladivostok, in China and elsewhere are recounted in Braisted, *The United States Navy in the Pacific, 1909-1922*.

[279] The Special Service Squadron was normally a relatively small force of about five ships, based in Panama. It did, however, swell during crises. For example, a total of 53 ships were temporarily assigned during operations off Nicaragua in 1927. On the Special Service Squadron, see Donald A. Yerxa, *Admirals and Empire: The United States Navy and the Caribbean, 1898-1945* (Columbia SC: University of South Carolina Press, 1991); idem, "The Special Service Squadron and the Caribbean Region, 1920-1940: A Case Study in Naval Diplomacy," *Naval War College Review*, 39 (Autumn 1986), 60-72; and Richard Millett, "The State Department's Navy: A History of the Special Service Squadron, 1920-1940," *The American Neptune,* 35 (April 1975), 118-138.

[280] On the special nature of the situations in China and the Caribbean that prevented abolition of U.S. Navy and other forward stations in those areas, see Stephen S. Roberts, "The Decline of the Overseas Station Fleets: The United States Asiatic Fleet and the Shanghai Crisis, 1932," *The American Neptune*, 37 (July 1977), 185-6.

[281] It was during this period that Lieutenant Colonel Pete Ellis, USMC, wrote his prophetic operation plan for amphibious assaults on Japanese-held Pacific islands, *Advanced Base Operations in Micronesia*. See Dirk Ballendorf and Merrill Bartlett, *Pete Ellis: An Amphibious Warfare Prophet, 1880-1923* (Annapolis MD: Naval Institute Press, 1969; and Lieutenant Colonel John J. Reber, USMC (Retired), "Pete Ellis: Amphibious Warfare Prophet," in *Assault from the Sea*, 157-167.

[282] For the Army, homeland coastal defense was a primary mission. For the Navy, it was secondary - perhaps even tertiary (the last coast defense monitor went out of commission in 1921; the last torpedo boats left the inventory around the same time). For the Marine Corps, coastal defense was relevant only in U.S. island possessions useful as advanced naval bases. And for the Army's Air Service, it was the only justification for procuring long-range bombers acceptable to defense decision-makers of the period.

[283] By the Joint Army and Navy Board agreement, naval aircraft were made responsible for all over-water reconnaissance and aerial attacks at sea, and the Navy was made responsible for deploying contact mines and submarine nets to defend coasts and harbors. Subsequent Congressional action gave the Army control of aerial operations from land bases, and the Navy control of aerial operations of the fleet, and at naval stations for instruction, experimentation, and training. Maurer, *Aviation in the U.S. Army*, 110-111; and Turnbull and Lord, *History of United States Naval Aviation*, 179-184.

[284] On Coontz's views on fleet re-organization, see Lawrence H. Douglas, "Robert Edward Coontz'" in *The Chiefs of Naval Operations*, ed. Love, 33. For details of interwar fleet organization, see Lieutenant Richard W. Leopold USNR, *Fleet Organization*, 1919-1941 (1945). The rationale provided by the Navy Department for re-consolidation was fleet efficiency and the need for "uniformity of practice." See *Annual Reports of the Navy Department for the Fiscal Year 1923* (Washington DC: U.S. Government Printing Office, 1924), 3. Contrast with the *Annual Report for 1919*, cited above. For the strategic roots of the re-organization and the eventual re-deployment to the Pacific - to support war planning against Japan - see Miller, *War Plan Orange*; and Gerald E. Wheeler, "Edwin Denby, 6 March 1921 - 10 March 1924;" and Roger K. Heller, "Curtis Dwight Wilbur, 19 March 1924-4 March 1929," in *American Secretaries of the Navy*, vol. 2, 1913-1972, ed. Paolo E. Coletta, (Annapolis MD: Naval Institute Press, 1980), 596-7 & 620. More centralized command of the fleet was achieved by another fleet re-organization in 1931, but this just reinforced, rather than changed, the underlying existing fleet deployment strategy. See Gerald E. Wheeler, "Charles Francis Adams, 5 March 1929-4 March 1933", in *American Secretaries of the Navy*, vol. 2., 636-7 & 648. See also Manley R. Irwin, "The Naval Policies of the Harding Administration: Time for a Reassessment?" *International Journal of Naval History* 1 (April 2002), on-line.

[285] Submarine Divisions in the Atlantic and Pacific, and Naval District Forces, remained separate from the U.S. Fleet.

[286] In 1931, new CNO Admiral William V. Pratt renamed and re-organized the constituent parts of the U.S. Fleet. His major innovation was the creation of type commands, to enhance training. The Battle Fleet became the Battle Force in the Pacific, with subordinate battleship, cruiser, destroyer, mine, and air fleet-wide type commands. The Scouting Fleet became the Scouting Force in the Atlantic, with similar sub-divisions, as well as a Training Squadron. A new Submarine Force became part of the U.S. Fleet, as did a Base Logistics Force. The Control Force was abolished. Only the Scouting Force, with its Training Squadron, remained based in the Atlantic, and it shifted to the Pacific in 1932 as a result of the Japanese invasion of Manchuria. (See Abbazia, *Mr. Roosevelt's Navy*, 24). A separate Naval Transportation Service was retained as well, under the Chief of Naval Operations.

[287] Joint and Navy war planning, while still being conducted against a variety of potential enemies, including Britain, was increasingly focusing on Japan during this period, especially after 1930. "War Plan Orange" is the descriptor used to label the entire corpus of Army, Navy and joint American plans and thinking regarding a future war with Japan before World War II. Despite numerous variations, the U.S. Navy saw its central tenets as clear: An offensive naval campaign would be launched from the United States forward across the Central Pacific, seizing islands for advanced fleet bases as necessary, until the Japanese fleet was brought to bay and obliterated in a battle at sea in the Western Pacific, whereupon the U.S. Navy would close in to blockade and starve out the Japanese Home Islands. The U.S. Army, as a participant in "Orange" planning, emphasized the central requirement to defend the Philippines, which was American territory ("extended homeland defense"). To the Navy, however, the Philippines were initially expendable, although possibly useful later in the campaign as advanced base sites. Detailed analysis is in Miller, *War Plan Orange*; and Linn, *Guardians of Empire.* For war planning in general during this period, see Ross, *American War Plans, 1919-1941*, vols. 1 and 2, (New York:

Garland Publishing, 1992); and Braisted, "The Evolution of the United States Navy's Strategic Assessments in the Pacific."

[288] The fleet's only interwar forward deployment, to Australasia in 1925, followed Fleet Problem V off Baja California in May and Joint Army and Navy Problem Number 3 off Hawaii in July. The Commander in Chief U.S. Fleet deployed the Battle Fleet and a cruiser division from the Scouting Fleet (but not the entire U.S. Fleet) on a 57-ship practice and good-will deployment via Samoa to Australia and New Zealand, returning to the United States in the latter part of August. This was the largest transoceanic movement in the history of the U.S. Navy until World War II, and it provoked a highly negative reaction from the Japanese Navy. All during this period, individual ships and squadrons were often detached from the fleet for distant deployments, but the fleet as a whole (and its major components) only did so during that one Australasian cruise. On the deployment, see William R. Braisted, "On the 1925 Australian Cruise of the American Fleet," *Pull Together: Newsletter of the Naval Historical Foundation*, 29 (Spring-Summer 1990), 1-4; and Peter M. Sales, "Going Down Under in 1925," Naval Institute *Proceedings* 1985 Supplement, 45-53. On the Japanese Navy's adverse reaction, see Sadao Asada, "The Revolt Against the Washington Treaty: The Imperial Japanese Navy and Naval Limitation, 1921-1927)," *Naval War College Review* 46 (Summer 1993), 93.

[289] All fleet exercises were held east of Midway and the International Date Line, despite the location of several American possessions west of the line. Most exercises were held east of Hawaii. On the policy of not provoking the Japanese, see Samuel Eliot Morison, *The Rising Sun in the Pacific, 1931-April 1942: History of United States Naval Operations in World War II* (Boston: Little-Brown, 1948), 29. See also Harvey M. Beigel, "The Battle Fleet's Home Port: 1919-1940," Naval Institute *Proceedings*, History Supplement (March 1985), 54-63.

[290] The interwar Fleet Problems were designated by number, beginning with Fleet Problem I in 1923 and ending with Fleet Problem XXI in 1940. Nevertheless, they were little different in concept or execution from the more-or-less annual large fleet exercises that had begun in the first decade of the century, intensified during the second decade, and continued into the third decade with the 1921 consolidated fleet problem in the Pacific off Panama. (As noted earlier, no major fleet exercise was held in 1922 due to lack of funds for fuel). They were normally held annually, but three were held in 1924 and two were held in 1930.

[291] For general overviews of the U.S. Navy during this period, see James W. Hammond, *The Treaty Navy: The Story of the U.S. Naval Service Between the World Wars* (Victoria, Canada: Trafford Publishing, 2001); and Philip T. Rosen, "The Treaty Navy, 1919-1937," in *In Peace and War*, ed. Hagan, 221-236. For an analysis that focuses on the alignment of exercises, war games, training, doctrine and war planning in the interwar Navy, see Mark Allen Campbell, "The Influence of Air Power Upon the Evolution of Battle Doctrine in the U.S. Navy, 1922-1941," (M.A. Thesis: University of Massachusetts at Boston, December 1992). See also Hone, "The Fleet That Didn't Deploy." Hone argues that the fleet's lack of forward deployments during the interwar period would hurt its initial combat performance during World War II

[292] For an analysis of the Fleet Problems as experiments, see Albert A. Nofi, *Naval Experimentation the Old Fashioned Way: The Fleet Problems, 1922-1940* (Alexandria VA: Center for Naval Analyses, forthcoming).

[293] On the role of the Naval War College, see Michael Vlahos, *The Blue Sword: The Naval War College and the American Mission, 1919-1941* (Newport RI: Naval War College Press, 1980); and Gerald J. Kennedy, *United States Naval War College, 1919-1941: An Institutional Response to Naval Preparedness* (Newport RI: Naval War College, Center for Advanced Research, 1975). On the role of the Office of the Chief of Naval Operations in Washington, see Thomas C. Hone, "The Fleet That Didn't Deploy: The U.S. Navy Battlefleet Between the Wars," unpublished paper prepared for the U.S. Navy Forward Presence Bicentennial Symposium (Alexandria VA: The CNA Corporation, June 21, 2001), 10-11.

[294] In 1925, the battle doctrine of the fleet had been codified in *General Tactical Instructions United States Navy 1924, F.T.P. 45* (Washington DC: U.S. Government Printing Office, 1925). On this publication and its subsequent modifications, see Campbell, "The Influence of Air Power," 82 and passim. On the utility of the Fleet Problems in changing Navy thinking and actions, see Thomas C. Hone letter in "Comment and Discussion," Naval Institute *Proceedings* 122 (October 1996), 19-20.

[295] On the Royal Navy's clear superiority over the U.S. Navy in the 1920s, see Bell, *The Royal Navy, Seapower and Strategy Between the Wars*, 25. On the Royal Navy's edge in 1936, see Commodore Dudley Wright Knox, "Introduction" to Samuel Eliot Morison, *History of United States Naval Operations in World War II*, vol. 1, *The Battle of the Atlantic, September 1939-May 1943* (Boston: Little, Brown and Company, 1960 edn.), lxi. The two navies were comparable, however, and it is easy to find measures that show the U.S. Navy in the lead. Albert Nofi has pointed out, for example, that the U.S. Navy carried far more big rifled guns than did the Royal Navy, and had a larger reserve fleet (Albert Nofi e-mail to the author, July 9, 2002)

[296] The 1922 Treaty of Washington limited battleships and aircraft carriers. The 1930 Treaty of London placed new limits on battleships, and limited cruisers, submarines and destroyers. On the effects of the Treaty limitations and budgetary constraints on the ability of the Navy to develop new technology and meet what it perceived to be its commitments to fight and win in the Western Pacific, see Thomas C. Hone, "Spending Patterns of the United States Navy, 1921-1941," *Armed Forces and Society*, 8 (Spring 1982), 443-62.

[297] For more detail on Navy force levels during this period, see Naval Historical Center, *U.S. Navy Active Ship Force Levels*. For a listing of additions and losses to the fleet during this period, see Pratt, *Our Navy*, 453-5. The Navy aircraft inventory dropped from over 1200 in 1922 to only 700 in 1924, but steadily built back up to a level of over 1600 by 1937. For detail, see Grossnick, *United States Naval Aviation*, 447. There were about 100,000 officers and men in the 300-plus- ship interwar Navy - about twice the number that had served in the U.S. Navy of Theodore Roosevelt, but only one quarter of the number serving in the 300-plus-ship Navy of the 1990s. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 45-49.

[298] The Army's budget - including funding for the Army Air Corps - was only somewhat larger than the Navy's during the interwar years. In one year - 1922 - it was actually smaller. Throughout the interwar period, the Army was never able to conduct Army-wide maneuvers on the scale of the Navy's Fleet Problems. During the 1920s, the Navy had full admirals serving as Chief of Naval Operations and Commander in Chief of the U.S. Fleet, the Battle Fleet, and the Asiatic Fleet. Thus, the Navy leadership far outranked that of the Army (as well as the Army Air Service, the Marine Corps and the Coast Guard). Between 1918 and 1929, the Congress would not allow the promotion of any more full Army generals beyond the heroes who had led the Army during the World War. It was not until 1929 that the Congress allowed the major general chosen to be Chief of Staff also to become a general so he could have a rank equal to that of the Chief of Naval Operations. Promotions for other Generals would not come until World War II. (Note the reversal of service roles on this issue over the preceding century). On Army and Navy ranks, see Oliver, *Why is the Colonel Called "Kernal?*" On the budget, see *Historical Statistics of the United States*, 1114.

[299] The Army during this period was focused on continental defense, while the Navy was focused on a trans-Pacific campaign. See Brian Linn, "The American Way of War Revisited," *Journal of Military History*, 66 (April 2002), 501-529; idem, "The U.S. Army Prepares for Total War, 1898-1941," in *The Total War: The Total Defense, 1789-2000* (Stockholm: Swedish Commission on Military History, 2001), 107-119; idem, *Guardians of Empire: The U.S. Army and the Pacific, 1902-1940* (Chapel Hill NC: University of North Carolina Press, 1997); and J.E. Kaufmann and H.W. Kaufmann, "The Prime Mission: Defending the Frontiers" and "America's Defenses and Defenders in the 1930s," chaps. in *The Sleeping Giant: American Armed Forces Between the Wars* (Westport CT: Praeger, 1996).

[300] Army and Navy units and personnel served together on joint boards and committees in Washington, including the Joint Army and Navy Board and its subordinate agencies; the Aeronautical Board and its

committees; the Joint Army and Navy Munitions Board; and the Joint Army-Navy Ammunition Storage Board. They served together overseas in Hawaii, the Canal Zone, the Philippines and China. Army units participated in Navy exercises, including many of the Fleet Problems and Fleet Landing Exercises. They also joined in Grand and Minor Joint Army and Navy Exercises (e.g. the Grand Joint Exercises of 1924, 1925 and 1932), initiated by the Joint Army and Navy Board and directed by the War and Navy Departments. Army participation in Navy exercises was often at the highest command levels, including the Chief of Staff of the Army. (In the vast literature on the interwar U.S. armed forces, there is little mention, let alone analysis or even exposition, of this extensive joint exercise record.) Exceptions include Atwater, "United States Army and Navy Development of Joint Landing Operations," 49-70; and Nofi, *Naval Experimentation* (forthcoming). On the grand joint exercises of 1925 and 1932, see Atwater, "United States Army and Navy Development of Joint Landing Operations," 58-70; Kaufmann and Kaufmann, *The Sleeping Giant*, 42 and 68; Leo J. Daugherty III, "Away All Boats: The Army-Navy Maneuvers of 1925," *Joint Force Quarterly*, no. 20 (Autumn/Winter 1998-9), 107-113; and Brigadier General Dion Williams, USMC, "Blue Marine Corps Expeditionary Force: Joint Army and Navy Exercises, 1925," *Marine Corps Gazette* 10 (September 1925), 76-88. On Army participation in certain of the FLEXes, see Atwater, "United States Army and Navy Development of Joint Landing Operations," 90-136. On the joint boards and committees during the interwar period, see *Federal Records of World War II*, vol. 2, 36-44.

[301] War planning was conducted under the sponsorship of the revived Joint Army and Navy Board. Numerous plans were developed, especially against "Orange" (Japan), "Red" (Britain); and ("Red-Orange" (Britain and Japan allied). Planned operations were actually to be "multi-service," not "joint" in the twenty-first century integrated sense. Planners relied on command concepts like "passage of command from Navy to Army", "direct communications", "coordination," and "paramount interest". See Eliot A. Cohen, "The Strategy of Innocence? The United States, 1920-1945,", In Williamson Murray, MacGregor Knox, and Alvin Bernstein (eds.), *The Making of Strategy: Rulers, States and War* (Cambridge UK: Cambridge University Press, 1994), 428-465.

[302] The documents were called *Joint Action of the Army and the Navy*, and were drafted in the Joint Army and Navy Board. The 1927 version was the first time that the roles and missions of the services had been laid out in an authoritative document other than legislation. It was much broader than (and superseded) *Joint Army and Navy Action in Coast Defense*, agreed to by the two services in 1920. The 1935 revision gave the conduct of air operations over the sea in direct defense of the coast to Army aviation as one of its primary functions. It gave to the Navy a secondary function of patrol of coastal zones and the protection of shipping therein. Meanwhile, in January 1931, CNO William V. Pratt and Army Chief of Staff Douglas MacArthur had signed an agreement giving the Army Air Corps the mission of defending U.S. coasts and overseas possessions with bombers. The Army Air Corps would henceforth bear the primary responsibility for land-based attacks on an enemy invasion fleet. The Navy retained sea-based maritime patrol aviation (seaplanes and their tenders), carrier air, and surface combatant catapulted floatplanes. Although repudiated by Pratt's successor, the agreement kept the Navy from operating its own long-range land-planes as patrol bombers until 1941. Later in 1931, Pratt and MacArthur also agreed to rationalize service radio-communications networks, and to jointly operate message centers in Oahu, Manila Bay, and Panama. As noted earlier, the literature on interwar aviation relationships between the Navy and the Army Air Service (the Army Air forces after 1926) is extensive. See especially Warren A. Trest, *Air Force Roles and Missions: A History* (Washington DC: Air Force History and Museums Program, 1998); Lieutenant Colonel James P. Tate, USAF (Retired), *The Army and its Air Corps: Army Policy toward Aviation, 1919-1941* (Maxwell Air Force Base AL: Air University Press, July 1998); Maurer, *Aviation in the U.S. Army*; Thomas H. Greer, *The Development of Air Doctrine in the Army Air Arm, 1917-1941* (Washington DC: Office of Air Force History, 1985); Lieutenant Colonel John F. Shiner, USAF, "The Air Corps, the Navy, and Coast Defense, 1919-1941," *Military Affairs* 45 (October 1981), 113-120; Turnbull and Lord, *History of United States Naval Aviation*

[303] The fleet also engaged in significant homeland security consequence management operations at home. In 1929, during a drought that dried up normal sources of hydro-electric power, the four turbine generators of the powerful new carrier *Lexington* were used to provide electricity to Tacoma, Washington. At San Pedro in 1933, sailors and Marines provided humanitarian assistance and security in the wake of an earthquake that devastated Los Angeles and Long Beach. There were also some small Navy deployments to explore the Arctic. See Nancy Fogelson, "U.S. Naval Air Expeditions in the Arctic in the 1920s," in *Naval History: the Seventh Symposium at the U.S. Naval Academy* (Wilmington DE: Scholarly Resources Inc., 1988), 186-194; John H. Bryant and Harold N. Cones, *Dangerous Crossings: The First Modern Polar Expedition, 1925* (Annapolis MD: Naval Institute Press, 2000); and Marion D. Williams, *Submarines Under Ice: The U.S. Navy's Polar Operations* (Annapolis MD: Naval Institute Press, 1998), 1-41.

[304] As noted earlier, on the forward deployed elements of the U.S. Navy during the interwar period, see Cole, "The Interwar Forward Intervention Forces". On the Asiatic Fleet, see idem, *Gunboats and Marines: The United States Navy in China, 1925-1928* (Newark DE: University of Delaware Press, 1983); and Stephen S. Roberts, *The Decline of the Overseas Station Fleets: The United States Asiatic Fleet and the Shanghai Crisis, 1932*, CNA Professional Paper 208, (Alexandria VA: Center for Naval Analyses, November 1977).

[305] U.S. naval forces participated in numerous ad hoc coalition operations in and around China during this period, coordinating and cooperating with warships from Great Britain, France, Italy, Japan, the Netherlands, Spain and Portugal. Operations included protection of the Canton Customs House in 1922, the landing of U.S. Marines in Shanghai, the Anglo-American bombardment of Nanking in 1927, the 1930 evacuation of Changsha, and the 1932 Anglo-American peace enforcement at Shanghai.

[306] U.S. Navy - and U.S. Coast Guard - ships cooperated with the warships from seven other nations in protecting and evacuating non-Spanish nationals during the 1936-1938 Spanish Civil War. On Squadron 40-T, see Willard C. Frank, Jr. “Multinational Naval Cooperation in the Spanish Civil War, 1936”, *Naval War College Review* (Spring 1994), 89; CAPT Edward E. Conrad USN (Ret), “An Ensign’s First Ship”, *Shipmate* 56 (June 1993), 20-22; and Adam Siegel, “The Tip of the Spear: The U.S. Navy and the Spanish Civil War”, (Alexandria VA: Center for Naval Analyses, draft unpublished paper, 1993), 13 and *passim.*

1937-1941 deployment strategy

[307] For an overview of the era, see John Major, "The Navy Plans for War, 1937-1941," in *In Peace and War*, ed. Hagan, 237-62.

[308] The size of the fleet in 1937 was 335; in 1939 it was 394; in 1940 it was 478; and on December 7, 1941 it was 790. The number of submarines in the fleet doubled, from 52 in 1937 to 112 in 1941. Large numbers of mine warfare vessels, patrol ships, and auxiliaries entered the fleet in 1940 and 1941. Figures are from Naval Historical Center, *U.S. Navy Active Ship Force Levels.* Between 1937 and 1941 the number of naval aircraft also doubled, from 1637 to 3437. See Grossnick, *United States Naval Aviation*, 448. For a detailed look at the fleet as of 1939, including its organization by fleets and squadrons, see James C. Fahey*, The Ships and Aircraft of the United States Fleet: 1939 First Edition* (reprint edn.) (Annapolis MD: Naval Institute Press, 1976). The number of Navy officers and enlisted personnel more than doubled, from less than 114,000 in 1937 to 285,000 in 1941. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47. In July 1940, President Roosevelt signed the Naval Expansion Act (also known as the "Two-Ocean Navy Act") providing funds for 257 additional ships - a 70% increase in U.S. naval tonnage. This legislation would put seven new battleships, 18 new carriers, 27 new cruisers, 115 new destroyers, and 43 new submarines into the fleet. For charts comparing the

tonnages of the world's leading navies in 1936 and 1941, see Knox, "Introduction," in Morison, *The Battle of the Atlantic*, lxi.

[309] For more details of fleet organization in this period, see Lieutenant Richard W. Leopold USNR, *Fleet Organization*, 1919-1941 (Washington DC: Navy Department, 1945). On the build-up in the Atlantic, see Abbazia, *Mr. Roosevelt's Navy.*

[310] "Plan Dog" was the culmination of a series of "Rainbow" plans that superseded the "Orange" plan as the Army and Navy's principal planned employment strategy. Unlike "War Plan Orange", which focused almost exclusively on a one-on-one American-Japanese conflict in the North and Central Pacific, the "Rainbow Plans" were global in scope and posited U.S. as well as Japanese allies. On Admiral Stark and "Plan Dog", see Mark M. Lowenthal, "The Stark Memorandum and American National Security Process," in *Changing Interpretations and New Sources in Naval History: Papers from the Third United States Naval Academy History Symposium*, ed. Robert W. Love, Jr. (New York: Garland, 1980), 352-9; and B. Mitchell Simpson III, *Admiral Harold B. Stark: Architect of Victory, 1939-1945* (Columbia SC: University of South Carolina Press, 1989). On the planned employment strategies in the "Rainbow" plans and "Plan Dog", see Ross, *American War Plans, 1919-1941*, vol. 3.

[311] Fleet Problem XXII had been scheduled for January 1941, but was cancelled due to the tense international situation and the desire by President Roosevelt to keep the fleet forward in and around Hawaii as a deterrent to the Japanese.

[312] Fleet Landing Exercise 7, held in February 1941, was a joint U.S. Fleet Patrol Force exercise involving elements of the 1st U.S. Army Division and the 1st Marine Division, the newly organized successor to the 1st Marine Brigade. Much of the Patrol Force - including three battleships and two aircraft carriers - participated. See Atwater, "United States Army and Navy Development of Joint Landing Operations," 134-6.

[313] In 1938, the United States announced it would no longer be bound by the limitations of the Treaty system. See Hammond, *The Treaty Navy*, 167.

[314] Fortifications on Hawaii and Midway had not been prohibited by the Treaty of Washington, but their defenses had not been strengthened greatly during the treaty period nonetheless, largely for financial reasons. Marine Defense Battalions started to form in late 1939, and by the time of the Japanese attack there were six, of which five were in the Pacific. On the Marine Defense Battalions, see David J. Ulbrich, "Clarifying the Origins and Strategic Mission of the US Marine Corps Defense Battalion, 1898-1941," *War & Society*, 17 (October 1999), 81-109; and Major Charles D. Melson USMC (Ret*), Condition Red: Marine Defense Battalions in World War II* (Washington DC: U.S. Government Printing Office, 1996).

[315] The agreement, signed by the United States and the United Kingdom in September 1940, exchanged fifty World War I-vintage U.S. Navy destroyers for U.S. Army and Navy access to seven forward bases in British colonies in the western hemisphere, from Newfoundland through Bermuda and the Caribbean to British Guiana. See Philip Goodhart, *Fifty Ships That Saved the World: The Foundations of the Anglo-American Alliance* (Garden City NY: Doubleday & Company, 1965).

[316] The 1st Marine Brigade became the 1st Marine Division and the 2d Marine Brigade became the 2d Marine Division. These were the first divisions in U.S. Marine Corps history (the Marines having failed in their earlier attempt to create a Marine Division in France during World War I). For their subsequent deployment histories, see Danny J. Crawford et al., *The 1st Marine Division and Its Regiments* (Washington DC: History and Museums Division, Headquarters, U.S. Marine Corps, 1999); and idem, *The 2d Marine Division and Its Regiments* (Washington DC: History and Museums Division, Headquarters, U.S. Marine Corps, 2001)

[317] See Robert J. Quinlan, "The United States Fleet: Diplomacy, Strategy and the Allocation of Ships (1940-1941)," in *American Civil-Military Decisions*, 153-201. On the U.S. Fleet commander's dispute with the President over the wisdom of this deployment, see Vice Admiral George C. Dyer (Retired), *On the Treadmill to Pearl Harbor: the Memoirs of Admiral James O. Richardson, USN (Ret),* (Washington DC: Naval History Division, Department of the Navy, 1973).

[318] By 1940, the Special Service Squadron was down to two destroyers and two gunboats. These forces were used to augment the Fifteenth Naval District forces defending the Panama Canal.
[319] Before the outbreak of war, the squadron used French ports as depots. After September 1939, it shifted to Lisbon, in neutral Portugal. The squadron played a minor role in evacuating American from Europe - most came home on merchant ships and Army transports - until its disestablishment in October 1940.
[320] In the spring of 1941, at the request of the State Department, the Navy deployed four cruisers and a destroyer squadron forward to visit New Zealand, Australia, Fiji and Tahiti, in order to demonstrate to Japan American solidarity with the British Commonwealth and hearten the Australians. The Navy, however, had been reluctant to make the deployment, fearing negative effects on training. See Morison, *Rising Sun in the Pacific*, 56.
[321] Four destroyers went to the Eleventh Naval District at San Diego, four to the Twelfth at San Francisco, five to the Thirteenth at Seattle, four to the Fourteenth at Pearl Harbor, and nine to the Fifteenth for defense of the Panama Canal approaches. The Naval Districts also deployed a steadily increasing number of mine-sweepers, harbor patrol vessels, harbor entrance control posts, magnetic loops, section bases, and civilian coastal pickets.
[322] Starting in 1940, after the Germans overran Denmark, the Coast Guard deployed forces to Danish Greenland. The Coast Guard was chosen for the mission because its status as an armed service provided an unmistakable indication of U.S. sovereignty, while its humanitarian image protected U.S. neutrality. See Tilley, John A., "The Coast Guard & the Greenland Patrol," Washington DC: U.S. Coast Guard Historian's Office, 1992. For this and other examples of the employment of the Coast Guard due to its unique status, see Roth, *U.S. Coast Guard*, 46-8.
[323] For recent scholarship on U.S. Army global strategic thinking in the run-up to World War II, See Henry G. Gole, *The Road to Rainbow: Army Planning for Global War, 1934-1940* (Annapolis MD: Naval Institute Press, 2002).
[324] In 1939, President Roosevelt ordered the Joint Army and Navy Board and certain other joint boards to report henceforth directly to him instead of to the Secretaries of War and Navy. A Joint Air Advisory Committee and a Joint Advisory Board on American Republics were created in 1940. A Joint Army and Navy Committee on Welfare and Recreation and a Joint Committee on Port Safety were set up in 1941. The Joint Army and Navy Board set up a subordinate Joint Intelligence Committee in 1941. On Roosevelt's 1939 direction, see Ray S. Cline, *Washington Command Post, The Operations Division: United States Army In World War II, The War Department* (Washington DC: Office of the Chief of Military History, United States Army, 1951), 45. On the new boards, see *Federal Records of World War II*, vol. 2: 37, 44-6.
[325] In Hawaii, Panama, and the Philippines, Navy commanders coordinated and cooperated with their Army counterparts. Labor was divided, tasks were apportioned, and exercises were held. Joint command, however, was not implemented. On joint exercises during this period, see Atwater, "United States Army and Navy Development of Joint Landing Operations"
[326] Since 1938, the U.S. Navy had been holding increasingly more specific talks with the Royal Navy concerning a global division of naval operational deployment and employment labor. By March 1941, this division had been formalized in an agreed document, the so-called "ABC-1 Agreement" (for American-British Conversations). The U.S. Navy was to command naval forces of both nations deployed in the North and Central Pacific and the Western Atlantic. The Royal Navy was to command naval forces deployed everywhere else. The U.S. Navy even agreed to put the Asiatic Fleet and some units deployed to the Eastern Atlantic under Royal Navy command. The full text of ABC-1 is in Ross, *American War Plans, 1919-1941*, Volume 4, 3-110. A good discussion of the geography and strategy of ABC-1 is in Richard M. Leighton and Robert W. Coakley, *Global Logistics and Strategy: 1940-1943, The United States Army In World War II : The War Department* (Washington DC: Office of the Chief of Military History, Department of the Army, 1955), 50-60. For all aspects of American-British naval relations before ABC-1, see Malcolm H. Murfett, *Fool-Proof Relations: The Search for Anglo-American Naval*

Cooperation During the Chamberlain Years, 1937-1940 (Singapore: Singapore University Press, 1984); and James R. Leutze, *Bargaining for Supremacy: Anglo-American Naval Collaboration, 1937-1941* (Chapel Hill NC: University of North Carolina Press, 1977).

1941-1943 deployment strategy

[327] The post of Commander-in-Chief U.S. Fleet (CINCUS) was retained as a responsibility of one of the three fleet commanders. The Pacific Fleet Commander - Admiral Husband E. Kimmel - was given the responsibility. The 180th meridian divided the areas of the Pacific and Asiatic Fleets. Forces outside the fleets included Naval Coastal Frontier Forces, Naval District Craft, and the Naval Transportation Service.
[328] A Caribbean Patrol was created in January 1941, re-designated Task Force 3 in March and the Southern Patrol in June. As the Southern Patrol, it began to operate out of Brazilian ports. Behind it, a new Caribbean Patrol was established. The Southern Patrol became Task Force 23 in February 1942, the South Atlantic Force in September 1942, and the Fourth Fleet in March 1943. The Brazilian Navy was placed under its operational control in September 1942. For the strategic views of President Roosevelt and CNO Admiral Harold Stark, see Simpson, *Admiral Harold B. Stark*, 80-87. For changes in naval deployments and organization in the 1941-1945 period, see Furer, *Administration of the Navy Department In World War II*.
[329] By late 1941, U.S. Navy escorts were taking hits in battles against German U-boats. The destroyer *Kearney* took a torpedo hit in October 1941 and was repaired by the tender *Vulcan*, which had been deployed forward to a sea-based station in Iceland. This was the first forward battle-damage repair effected by the U.S. Navy in World War II. Also, marking the demise of the 1931 Pratt-MacArthur agreement, in September 1941 the Navy requisitioned 20 Lockheed Hudson anti-submarine patrol bombers then in production for Britain's Royal Air Force, to operate from a new Atlantic Fleet base at Argentia, Newfoundland. The U.S. Navy was back in the land-based maritime patrol aviation business. On U.S. Navy operations in the North Atlantic in 1941, see Thomas A. Bailey and Paul B. Ryan, *Hitler vs. Roosevelt: The Undeclared Naval War* (New York: The Free Press, 1979). On U.S. Navy sea-based battle damage repair during World War II, see Rear Admiral Edward W. Carter III, "BDR -- Proven in War," *Surface Warfare* 13 (November-December 1988), 4-5. On the re-birth of land-based maritime patrol aviation in the U.S. Navy, see Norman Polmar, "The First Land-Based ASW Aircraft," *Naval History* 14 (June 2000), 10-11.
[330] The Marines took responsibility for defending the island of Iceland from British troops. Their six transports were escorted by an Atlantic Fleet task force of two old battleships, two cruisers, and 13 destroyers. This was the first U.S. naval task force to be assembled for foreign service in World War II, and the first to carry men and equipment into a war zone. In July, an Atlantic Fleet carrier task group ferried aircraft to Iceland. Atlantic Fleet maritime patrol aircraft began flying out of Iceland in August. See Colonel James A. Donovan, USMC (Retired), *Outpost in the North Atlantic: Marines in the Defense of Iceland* (Washington DC: History and Museums Division, Headquarters, U.S. Marine Corps, 1993).
[331] On the Marines' redeployment from China, see Shaw, *Opening Moves.*
[332] The Army, like the Navy and Marine Corps, had come down greatly in strength during the interwar period from its World War I peak, but never returned to its pre-war force levels. The Army swelled from about 160,000 in 1940 to over 284,000 in 194, and then to almost seven million in 1943. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46-47. In the summer and fall of 1941, the Army conducted its GHQ Maneuvers in Louisiana and North Carolina, involving almost a half-million troops - the largest exercises ever conducted by the U.S. Army before or since. Eight Navy and Marine Corps aviation squadrons helped provide close air support assistance, given their proficiency in same and the lack of Army Air Forces capabilities thereof. See Robert J. Cressman, "A Very Valuable Ship . . ." *The Hook* 21 (Summer 1993), 17-31; Christopher R. Gabel, *The U.S. Army GHQ Maneuvers of 1941* (Washington DC: Center of Military History, United States Army, 1991); and Admiral Harry D. Felt (Retired), "VB-2 Partaking in Army Field Maneuvers -- 1941," *Foundation* 5 (Spring 1984), 11-67.

[333] The First Joint Training Force was created on June 1941, under the command of Major General Holland M. Smith, USMC, and included the 1st Marine Division, the 1st Army Division, and Marine and Army aviation units. It trained intensively in North Carolina throughout the summer of 1941, and was renamed the Amphibious Corps Atlantic Fleet. A second major joint set of exercises was held in January 1942. A similar joint amphibious training organization was activated on the west coast. See Atwater, "United States Army and Navy Development of Joint Landing Operations," 144-160.

[334] The Japanese naval air raid on the Pearl Harbor sank or damaged eight of the nine Pacific Fleet battleships (one had been in overhaul in California). Only two were damaged beyond repair, however. Two of the Pacific Fleet's three carriers were at sea during the attack (the third was in California). Four other carriers, seven other older battleships and two new fast battleships were in the Atlantic at the time. The raid on Pearl Harbor was followed by successful Japanese invasions of the Philippines, Wake and Guam. For the Marine Corps defense of Wake Island, see Robert J. Cressman, *A Magnificent Fight: Marines in the Battle for Wake Island* (Washington DC: History and Museums Division, Headquarters U.S. Marine Corps, 1992). On the U.S. Navy in World War II, see Samuel Eliot Morison, *The Two Ocean War: A Short History of the United States Navy in the Second World War* (Boston: Little, Brown, 1963), which summarizes his classic 15-volume history; Robert W. Love, Jr., "Fighting a Global War, 1941-1945," in *In Peace and War*, ed. Hagan, 263-289; Furer, "Fleet Organization," chap. in *Administration of the Navy Department in World War II*; and *Federal Records of World War II*, vol. 2.

[335] On December 8, Chief of Naval Operations Harold Stark ordered the Commander In Chief, U.S. Atlantic Fleet, Admiral Ernest King, to send to the Pacific one of his four carriers, three battleships, a destroyer squadron and three squadrons of maritime patrol aircraft. Other warships and aircraft, including two more carriers, followed in the next six months.

[336] For the "Rainbow-5" plan and the nation's evolving planned employment strategies in the summer and fall of 1941, see Ross, *American War Plans, 1919-1941*, vol. 5. There is a large literature on World War II organizational strategy and its relationship to deployment and employment strategy. See especially John Ehrman, *Grand Strategy: Volume VI: October 1944-August 1945* (London: HMSO, 1956), 351-361; Richard Leighton, "Allied Unity of Command in the Second World War: A Study in Regional Military Organization", *Political Science Quarterly*, LXVII (September 1952), 399-425; D. Clayton James, "MacArthur and Eisenhower and Joint, Combined and Amphibious Operations, 1941-1945", in Bittner, *Selected Papers*, 21-32; Edward J. Marolda, "Major Organizational Changes Relating to the Navy in the Pacific Theater: 1941-1986", (Washington DC: Naval Historical Center, May 1986); Douglas L. Bland, *The Military Committee of the North Atlantic Alliance: A Study of Structure and Strategy* (New York: Praeger, 1991, Chapter 4, "The Anglo-American Alliance: Unity and Victory"; and Sean M. Maloney, "Second World War Command Organization," chap. in *Securing Command of the Sea: NATO Naval Planning, 1948-1954* (Annapolis MD: Naval Institute Press, 1995), 5-46.

[337] Prodded by the President, on December 17 the Joint Army and Navy Board directed establishment of joint Army-Navy commands to protect the Panama Canal (under Army command) and Hawaii (under Navy command). See Grace Person Hayes, *The History of the Joint Chiefs of Staff In World War II: The War against Japan* (Annapolis MD: Naval Institute Press, 1982), 29-30.

[338].Joint and allied commands set up in the pacific included the short-lived American-British-Dutch-Australian Supreme Command (ABDACOM) in Southeast Asia (which subsumed the doomed U.S. Asiatic Fleet); then an Army-dominated Southwest Pacific Area; and the Navy-dominated Pacific Ocean Areas (POA). ABDACOM was set up on January 16, 1942, under a British Army commander. Admiral Thomas C. Hart, Commander in Chief of the U.S. Asiatic Fleet, became the allied naval commander (ABDAFLOAT). The command fought a delaying action against the Japanese in Southeast Asia until it was defeated and dissolved a month and a half later. On Admiral Hart as ABDAFLOAT, see James R. Leutze, *A Different Kind of Victory: A Biography of Admiral Thomas H. Hart* (Annapolis MD: Naval Institute Press, 1981). An ANZAC Area was also created, to ABDACOM's east, under a U.S. Navy admiral answering to COMINCH. These commands were superseded in April by the joint Pacific Ocean Areas (POA) under the Commander in Chief of the Pacific Fleet, Admiral Chester Nimitz; and the joint

Southwest Pacific Area under U.S. Army General Douglas MacArthur. POA was subsequently further subdivided into North Pacific, Central Pacific and South Pacific areas. On Admiral Nimitz as CINCPAC and CINCPOA, see E.B. Potter, *Nimitz* (Annapolis MD: Naval Institute Press, 1976). The remnants of the U.S. ABDA and ANZAC naval forces became the Southwest Pacific Force, General MacArthur's naval component. Pacific Fleet-POA task forces fought the Japanese at the battles of the Coral Sea and Midway in mid-1942, supported in the former battle by a Southwest Pacific naval force on loan from General MacArthur, and in the latter battle by Army Air Forces Midway-based aircraft. A South Pacific Area task force - again including Southwest Pacific naval forces on loan - landed Marines on Guadalcanal in the Solomons in August. On joint air operations in the Solomons, see Rear Admiral James A. Winnefeld (Retired), and Dana J. Johnson, *Joint Air Operations: Pursuit of Unity in Command and Control, 1942-1991* (Annapolis MD: Naval Institute Press, 1993).

[339] Admiral Stark's command was U.S. Naval Forces Europe, which had grown out of a U.S. Navy liaison mission set up in London in 1940. On Stark's tour in London, see Simpson, *Admiral Harold B. Stark*.

[340] General Eisenhower, the Commanding General of the U.S. (Army) European Theater of Operations, was made Commander in Chief Allied Expeditionary Force in August 1942. His naval component commander was Royal Navy Admiral Sir Andrew B. Cunningham, commander of the British Mediterranean Fleet. Cunningham's U.S. Navy subordinate commander was Rear Admiral H. Kent Hewitt, the U.S. Navy's Atlantic Fleet Amphibious Force commander. Also in August 1942, the Army assumed command of the Amphibious Corps, Atlantic Fleet from the Marine Corps, which operated solely in the Pacific for the remainder of the war. (Major General Holland M. Smith USMC moved from command of the Amphibious Corps Atlantic Fleet to the Pacific, and eventually to command of one of the two Amphibious Corps there.) Hewitt's force surge deployed from the East Coast in October 1942 and landed U.S. Army units in French Morocco in November. The operation was the largest U.S. amphibious assault undertaken to date and the first major U.S. joint operation since the Spanish-American and Philippine Wars. Hewitt remained in Europe as commander of U.S. Naval Forces Northwest African Waters, established in February 1943, still as a subordinate to a Royal Navy theater combined naval component commander. On the complex and changing combined naval command structure in the Mediterranean, see *Federal Records of World War II*, vol. 2, 789-791. For an overall account of U.S. Navy and Royal Navy combined relationships throughout the war, see Marc Milner, "Anglo-American Naval Co-operation in the Second World War, 1939-45," in *Maritime Strategy and the Balance of Power: Britain and America in the Twentieth Century*, eds. John B. Hattendorf and Robert S. Jordan (New York: St. Martin's Press, 1989), 243-68. On the amphibious force changes, see Atwater, "United States Army and Navy Development of Joint Landing Operations," 161-164. On the joint Army-Navy landings in North Africa, see John Gordon IV, "Joint Power Projection: Operation Torch," *Joint Force Quarterly*, no. 4 (Spring 1994), 60-69; and Atwater, "United States Army and Navy Development of Joint Landing Operations".

[341] The Coast Guard - part of the Navy since November 1941 - performed coastal convoy escort, surveillance, harbor defense, search and rescue, and other homeland defense missions. The service also, however, deployed far forward as well, manning amphibious and escort ships and craft and participating in every major amphibious invasion of the war. See Malcolm F. Willoughby, *The U.S. Coast Guard in World War II* (New York: Arno Printing, 1980); and Robert Erwin Johnson, "Coast Guard-Manned Naval Vessels in World War II," (Washington DC: U.S. Coast Guard Historian's Office, 1993).

[342] There were six Naval Coastal Frontiers created in July 1941: The North Atlantic, Southern, Caribbean, Panama, Pacific Southern and Pacific Northern. They were assigned forces in September - largely small surface combatants. Two additional frontiers were established for Hawaii and the Philippines. On December 20 they were placed under the command of COMINCH. The eight Sea Frontiers that superseded them included the Caribbean, Eastern, Gulf, Hawaiian, Northwest, Panama, Philippine, and Western Sea Frontiers. Later Sea Frontiers were set up off Alaska and Morocco. On the Sea Frontiers,

see *Federal Records of World War II,* vol. 2, 729-738; and *Fifty Years of Naval District Development, 1903-1953*, 25-33.

[343] Germany declared war on the United States on December 11, 1941 and in February 1942 launched a submarine offensive against allied shipping off the American East coast that the under-resourced Sea Frontiers and Atlantic Fleet task forces were ill-equipped to stem. In March the U.S. Army Air Force began placing land-based long-range patrol bombers under the operational control of Sea Frontier commanders. April 1942 saw the first German submarine kill in the Atlantic by a U.S. Navy warship, and in May COMINCH and his Sea Frontier commanders instituted a coastal convoy system, which reduced U-boat sinkings of allied merchantmen in U.S. waters considerably. By August, the Navy too was flying long-range patrol bombers over the Atlantic. In October the Army Air Forces set up its own Army Anti-Submarine Air Command. Meanwhile, Atlantic Fleet carriers, new fast battleships and cruisers operated under Royal Navy operational control in the Eastern Atlantic and Mediterranean in a series of small lackluster operations that soured U. S. Navy commanders on further such combined blue-water operations. The literature on the Battle of the Atlantic is vast. See especially Timothy Lang Francis, "Poseidon's Tribute: Maritime Vulnerability, Industrial Mobilization and the Allied Defeat of the U-Boats, 1939-1945" (Ph.d. diss.: University of Maryland, 2001); David Kohnen, *Commanders Winn and Knowles: Winning the U-Boat War with Intelligence, 1939-1943* (Krakow, Poland: The Enigma Press, 1999); Robert W. Love, Jr., "The U.S. Navy and Operation Roll of Drums, 1942," in *To Die Gallantly: The Battle of the Atlanti*c, eds. Timothy J. Runyan and Jan M. Copes (Boulder CO: Westview Press, 1994), 95-120; and Michael Gannon, *Operation Drumbeat: The Dramatic True Story of Germany's First U-Boat Attacks Along the American Coast in World War II* (New York: Harper and Row, 1990).

[344] In the last such operation, the British employed a task force built around the small U.S. Navy carrier *Ranger* to make air strikes on German positions in Norway - the first U.S. Navy carrier strike operations ever in the Norwegian Sea. *Ranger* and her escorts returned to the United States in November 1943, and were not replaced until three old battleships deployed In 1944 to support the assaults on Normandy and the South of France. On *Ranger*'s deployments in the Atlantic, see "'A Very Valuable Ship . . .': An Operational History of USS Ranger (CV-4), 1934-1946: Part II: 1939-1946", *The Hook*, 21 (Summer 1993), 17-31. Meanwhile, in the Solomon Islands in the Pacific, the British loaned the carrier *Victorious* to Admiral Halsey's South Pacific Command in the spring and summer of 1943.

[345] One of the initial raids on the Japanese was a joint raid in April 1942 on the Japanese Home Islands themselves, using U.S. Army Air Forces B-24 bombers launched from Pacific Fleet carriers. As Captain Wayne Hughes pointed out in 2000, the Solomons Campaign "exhibits to perfection the supposedly new phenomenon, joint littoral warfare." See *Fleet Tactics and Coastal Combat*, 2-3. On the tactics developed and used by the U.S. Navy during World War II, see ibid. especially 90-143. On the innovative new naval aviation fighter tactics developed in the early months of the war, see John B. Lundstrom, *The First Team: Pacific Naval Air Combat from Pearl Harbor to Midway* (Annapolis MD: Naval Institute Press, 1984). On Admiral King's initial employment strategy for the fleet in the Pacific in 1942, see Clark Reynolds, "The U.S. Fleet-in-Being Strategy of 1942," *Journal of Military Hi*story, 58 (January 1994), 103-18.

[346] On the Navy's slow establishment of an effective fleet sea-based logistics system in Washington and the Pacific, see Duncan S. Ballentine, *U.S. Naval Logistics in the Second World War* (Princeton University Press, 1949).

[347] In September 1940, an independent U.S. Fleet Submarine Force command had been abolished, and the submarines divided between the Scouting Force and the Patrol force respectively. The re-division of the fleet in 1941had kept the Pacific Fleet submarines subordinate to the Pacific Fleet scouting force commander. Less than a month after the raid on Pearl Harbor, however, Submarines, Pacific Fleet was established, reporting directly to the Commander in Chief of the Pacific Fleet, Admiral Nimitz. It became the Submarine Force, U.S. Pacific Fleet in September 1942. A squadron of Atlantic Fleet submarines deployed forward to Scotland in October 1942, but were withdrawn to the Pacific in June 1943, having been underutilized by the Royal Navy, in the view of CNO/COMINCH Admiral King.

[348]The President created the U.S. Joint Chiefs of Staff (JCS) largely to be able to present unified American positions to their British counterparts within the combined Chiefs of Staff. In January 1942, the Combined Chiefs of Staff - including the chiefs of staff of the British and American services, began to meet formally to plan and coordinate running the war, under the direction of President Roosevelt and British Prime Minister Winston Churchill. The JCS met formally for the first time in February 1942. In July 1942, the President appointed former CNO Admiral William D. Leahy as his special military advisor (later Chief of Staff to the Commander in Chief), to also act as chairman of the U.S. Joint Chiefs. Some fifty other joint Army-Navy boards, committees and the like functioned during the war as well. On the Joint Chiefs of Staff, see Mark A. Stoler, *Allies and Adversaries: The Joint Chiefs of Staff, the Grand Alliance, and U.S. Strategy in World War II* (Chapel Hill NC: University of North Carolina Press, 2000); and *Organizational Development of the Joint Chiefs of Staff, 1942-1989* (Washington DC: Historical Division, Joint Secretariat, Joint Chiefs of Staff, November 1989). On the other joint boards and committees, see *Federal Records of World War II*, vol. 2: 46-59.

[349]On December 18, 1941, an Executive Order changed the Navy's top command structure. The Commander in Chief U.S. Fleet (COMINCH), now directly responsible to the President, had supreme command of the operating forces of the several fleets of the Navy, with headquarters in Washington. The CNO remained responsible for war planning. Admiral, the pre-war Atlantic fleet commander, became COMINCH on December 31. By March 26, 1942, King had assumed the title and duties of CNO as well. See Fleet Admiral Ernest J. King and Commander Walter Muir Whitehill, *Fleet Admiral King: A Naval Record* (New York, W.W. Norton & Company, 1952); and Thomas B. Buell, *Master of Sea Power: A Biography of Fleet Admiral Ernest J. King* (Boston: Little Brown and Company, 1980); and Robert W. Love, Jr., "Ernest J. King," in *Men of War: Great Naval Leaders of World War II*, ed. Stephen Howarth (New York: St. Martin's Press, 1993).

[350] On joint - including naval - war planning before and during World War II, see Steven T. Ross, *American War Plans, 1941-1945: The Test of Battle* (London: Frank Cass, 1997.

[351]The Navy, unable to meet the Army's sealift needs despite pre-war agreement to do so, deployed its own Naval Transportation Service (NTS) and Naval Air Transportation Service (NATS), while the Army and its Army Air Forces ran an Army Transport Service and an Air Transport Service. The Navy set up NATS on December 12, 1941. By the end of 1944 it would have 700 airlift aircraft (the Army Air Forces' Air Transport Service would have 1700). On the Navy's sealift deployments and its inability to meet Army sealift requirements, see Lieutenant Duncan S. Ballentine USNR, "Naval Transportation,", *Public Administration Review*, V (Autumn 1945), 342-9; and Chester Wardlow, *The Transportation Corps: Responsibilities, Organization, and Operations: United States Army in World War II: The Technical Services* (Washington DC: Center of Military History, United States Army, 1991) 200-211 and 412-414; and Richard M. Leighton and Robert W. Coakley, *Global Logistics and Strategy, 1940-1943: United States Army in World War II: The War Department* (Washington DC: Office of the Chief of Military History, 1955), 121-3 and 656-60. On NATS deployments, see Reginald M. Cleveland, *Air Transport at War* (New York: Harper and Brothers, 1946), 29-35, 87-88, 103-105, 149-162, 237-240; James Lee, *Operation Lifeline: History and Development of the Naval Air Transport Service* (Chicago: Ziff Davis Publishing Company, 1947); and Robert J. Serling, *When the Airlines Went to War* (New York: Kensington Books, 1997), 23-27, 108-111, 259-261.

[352] Most of the growth in warship numbers was in carriers and in anti-submarine, mine warfare, and amphibious and auxiliary ships. The carrier force dipped to only 4 at the end of 1942, due to early war losses, but rose to 19 a year later, not counting 35 escort carriers. The number of submarines went from 171 in December 1941 to 172 in December 1943. See Naval Historical Center, *U.S. Navy Active Ship Force Levels*. For aircraft force levels, see Grossnick, *United States Naval Aviation*, 448. Personnel figures are from *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47.

[353] In 1942, the two Marine divisions - one on the east coast and one on the west coast - were earmarked for operations in the Pacific, and a third division was forming. By the end of 1943, a fourth Marine division had formed. In April 1942, the Commandant of the Marine Corps, Major General Thomas

Holcomb, was promoted to lieutenant general - the first Marine officer to wear three stars and the first increase in rank for the Commandant's position since the turn of the century. A little later, the Assistant to the Commandant was made a two-star position. Marine Corps active end strength almost sextupled - from 54,000 in 1941 to 309,000 in 1943. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*,
47.

1943-1945 deployment strategy

[354] Most of the growth was in amphibious and auxiliary warships, which accounted for more than half of the total. At VJ-Day the fleet also deployed 71 escort carriers and 232 submarines. Figures are from Naval Historical Center, *U.S. Navy Active Ship Force Levels*.
[355] Aviation figures are from Grossnick, *United States Naval Aviation*, 448. In 1944, the first helicopters entered the fleet; by 1945, the Navy Department had 27 in the inventory. The number of active duty Navy personnel rose from 1.7 million in 1943 to 3.3 million in 1945. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47.
[356] The Marine Corps at the end of the war comprised two amphibious corps - III Amphibious Corps and V Amphibious Corps - each with three divisions, and all in the Pacific. The Fleet Marine Force acted as a Pacific Fleet type command. Manpower figures are from *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47.
[357] The elevations in 1944 and 1945 of Admirals Leahy, King, Nimitz and Halsey from four stars to five did not permanently affect the Navy's rank structure. The wartime promotions of the Commandants of the Marine Corps and the Coast Guard from two to three to four stars, however, set precedents that were subsequently followed, and became permanent changes.
[358] The First, Second, and Ninth Fleets existed only notionally, but allowed the systematic numbering of task forces under CINCPACFLT, CINCLANTFLT, and COMNORPAC respectively. The Southeast Pacific Area, created early in the war, quickly became a backwater as the threat of a Japanese attack on the Panama Canal receded. The North Pacific Force operated in and around the Aleutians, landing Army troops to re-take Attu and Kiska in 1943. It then went on to bombard the Japanese Kurile Islands and engage Japanese naval forces there. As had been true throughout the war, no two theaters and no two numbered fleets were the same. Under now-Fleet Admiral King's direction, only the Third and Fifth Fleets deployed fast carrier task forces, with their fleet and light carriers and fast battleships. Amphibious ships and craft served in those Fleets and in the Seventh, Eighth, and Twelfth, while escort carriers served in the Third, Fifth, Seventh and Atlantic Fleets. Navy land- and sea-based patrol aviation units served just about everywhere.
[359] On the Twelfth Fleet, see Simpson, *Admiral Harold B. Stark*.
[360] During the spring and summer of 1943 there was a rationalization of the U.S. Navy's anti-submarine warfare deployments in the Atlantic. In April 1943, the U.S. Navy resolved most of its jurisdictional disputes with its Atlantic allies, turning over its trans-Atlantic convoy escort responsibilities to the British and Canadians and refocusing its own efforts on the Central and Western Atlantic, the Caribbean, and hunter-killer operations throughout the area. In May the Tenth Fleet organization was created in Washington to manage the U.S. Navy anti-submarine war. Once directed and allocated forces by the Tenth Fleet staff, the Atlantic Fleet and Sea Frontier commanders conducted the actual anti-submarine operations. By September, the Navy had taken over responsibility for all land-based long-range over-water maritime patrol aviation from the Army Air Forces. The Navy streamlined its coastal defense command relationships in 1944, when the Naval Districts became operationally subordinate to the Sea Frontiers, and the Sea Frontiers were in turn placed for operational purposes under the Atlantic and

Pacific Fleet commanders. The Tenth Fleet was dissolved in June 1945. See Ladislas Farago, *The Tenth Fleet* (New York: Paperback Library, 1964). On the initial use of operations analysis by the Navy and the creation in 1942 of the Anti-Submarine Warfare Operations Research Group (ASWORG) - ancestor of the Operations Evaluation Group, the Center for Naval Analyses, and the CNA Corporation - see Keith R. Tidman, *The Operations Evaluation Group: A History of Naval Operations Analysis* (Annapolis MD: Naval Institute Press, 1984). As previously noted, there is a large literature on U.S. Navy anti-submarine warfare in the Atlantic during World War II. See especially Jeffrey G. Barlow, "The Views of Stimson and Knox on Atlantic Strategy and Planning" in *To Die Gallantly,*. Runyan and Copes eds., 22-37; Colonel Montgomery C. Meigs USA, *Slide Rules and Submarines: American Scientists and Subsurface Warfare in World War II* (Washington DC: National Defense University Press, 1989); and Samuel Eliot Morison, *The Atlantic Battle Won, May 1943-May 1945: History of United States Naval Operations in World War II*, vol. 10 (Boston: Little, Brown and Company, 1960).

[361] On the Japanese kamikaze ships and craft, see Syohgo Hattori, "Kamikaze: Japan's Glorious Failure," *Air Power History*, 43 (Spring 1996), 16-27. On the German submarine threat off the U.S. east coast in 1945 and the American response, see Commander Doug McLean, Canadian Armed Forces, "The U.S. Navy and the U-Boat Inshore Offensive," in *New Interpretations in Naval History: Selected Papers from the Twelfth Naval History Symposium*, *Held at the United States Naval Academy, 26-27 October 1995* (Annapolis MD: Naval Institute Press, 1997), ed. William B. Cogar, 310-324; and Philip K. Lundeberg, "Operation *Teardrop* Revisited," in *To Die Gallantly*, eds. Runyan and Copes, 210-30.

[362] On U.S. Navy submarine employment strategy and operations in the Pacific during World War II, see Clay Blair, Jr., *Silent Victory: The U.S. Submarine War against Japan* (Philadelphia PA: Lippincott, 1975); Admiral Charles A. Lockwood, *Sink 'Em All: Submarine Warfare in the Pacific* (New York, Dutton, 1951); and Theodore Roscoe, *United States Submarine Operations in World War II* (Annapolis MD: Naval Institute Press, 1949).

[363] On the transformation from an oceanic to a trans-oceanic strategy, see Huntington, "National Policy and the Transoceanic Navy," 483-493. For a 1960s-era rebuttal of Huntington's thesis that fighting from the sea had superseded fighting for the sea as the Navy's employment strategy template, see Lieutenant Commander Wayne Hughes, Jr., "Missiles and Missions," Naval Institute *Proceedings* 90 (December 1964), 38-43. For an argument that this transformation actually did not occur until the end of the Cold War, because of the U.S. Navy's need to achieve sea control in the face of a growing Soviet fleet, see Jan Breemer, "The End of Naval Strategy: Revolutionary Change and the Future of American Naval Power," *Strategic Review*, 22 (Spring 1994), 40-53.

[364] For the assaults on Japan, scheduled for late 1945 and 1946, CINCPAC Admiral Nimitz planned to deploy both a Third Fleet under Admiral Halsey and a Fifth Fleet under Admiral Spruance simultaneously.

[365] On amphibious operations in World War II (and later), see Malkasian, *Charting the Pathway to OMFTS*. For analyses contrasting Army, Marine Corps and joint amphibious assaults and landings, see John A. Lorelli, *U.S. Amphibious Operations in World War II* (Annapolis MD: Naval Institute Press, 1995). On the problems in aligning organizational strategy with deployment and employment strategy for the planned invasion of Japan, see Jeffrey G. Barlow, "The Question of Command for Operation Olympic," in *New Interpretations in Naval History: Selected Papers from the Twelfth Naval History Symposium*, *Held at the United States Naval Academy, 26-27 October 1995*, ed. Cogar, 325-338.

[366] On the Seventh Fleet, see Gerald E. Wheeler, *Kinkaid of the Seventh Fleet: A Biography of Admiral Thomas C. Kinkaid, U.S. Navy* (Washington DC: Naval Historical Center, Department of the Navy, 1995).

[367] There is a large literature on U.S. Navy operations during the invasion of Normandy. For the latest scholarly analysis, see Adrian R. Lewis, *Omaha Beach: A Flawed Victory* (Chapel Hill NC: University of North Carolina Press, 2001). For an analysis of naval, joint and combined amphibious operations in the Mediterranean during World War II, see Dean Allard, "The U.S. Navy Comes Ashore in the Med," *Naval History*, 11 (September/October 1997), 45-50.

[368] In April 1945, both the Fourth Fleet and Eighth Fleet were disestablished, and their few remaining forces were re-aligned as task forces of the Atlantic and Twelfth Fleets respectively.
[369] Although designated a task *force*, the British Pacific Fleet - with its four carriers, two battleships, five cruisers and 15 destroyers - was by then equivalent to no more than one U.S. Navy Pacific Fleet task *group*. On the British Pacific Fleet, see Edwyn Gray, *Operation Pacific: The Royal Navy's War Against Japan, 1941-1945* (Annapolis MD: Naval Institute Press, 1990); Arthur Marder, Mark Jacobsen and Hohn Horsfield, *Old Friends New Enemies: the Royal Navy and the Imperial Japanese Navy, Volume II: The Pacific War, 1942-1945* (Oxford: Clarendon Press, 1990); Christopher Thorne, *Allies of a Kind: the United States, Britain, and the War against Japan, 1941-1945* (New York: Oxford University Press, 1978); John Winton, *The Forgotten Fleet: The British Navy in the Pacific, 1944-1945*, (New York: Coward-McCann, Inc., 1969); Peter C. Smith, *Task Force 57: The British Pacific Fleet, 1944-1945* (London: William Kimber, 1969); and Merrill Bartlett and Robert W. Love, Jr., "Anglo-American Naval Diplomacy and the British Pacific Fleet, 1942-1945", *American Neptune*, 42 (July 1982), 203-216. Prior to deployment of the British Pacific Fleet, in 1944, the U.S. Navy carrier *Saratoga* had deployed as part of a six-nation allied force that struck Sumatra in the Southeast Asia Command, under Royal Navy commanders. See Clark G. Reynolds, "'Sara' in the East", Naval Institute *Proceedings* 87 (December 1961), 74-83; and Ned Willmott, "Reinforcing the Eastern Fleet: 1944", *Warship*, 39 (July 1986), 191-198.
[370] On U.S. Navy ship transfer and training programs for the Soviet Navy in 1945, to prepare the Soviets for their assaults on Japanese-held Sakhalin Island and the Kuriles, see Richard A. Russell, *Project Hula: Soviet-American Cooperation in the War Against Japan* (Washington DC: Department of the Navy, Naval Historical Center, 1997). For other aspects of U.S. Navy-Soviet Navy cooperation in World War II and other periods, see Admiral Kasatonov, "Facets of Cooperation".

1945-1947 deployment strategy

[371] As at the end of World War I, the end of World War II saw much of the fleet employed as transports to bring the troops home from theaters around the globe. This evolution - styled Operation "Magic Carpet" - continued until September 1946, but was obviously a temporary if aberrant phenomenon, and not a real or significant change in employment strategy.
[372] On the change in the Navy's deployment strategy after World War II, see Jeffrey G. Barlow's excellent "From the Fifth and Eighth Fleets to the Sixth and Seventh: The Roots of Cold War Combat Credible Forward Presence," unpublished paper prepared for the "U.S. Navy Forward Presence Bicentennial Symposium" (Alexandria VA, The CNA Corporation, June 21, 2001). For a good popular treatment of the Navy's deployment strategy just after the war, see George Fielding Eliot, *The Strength We Need: A Military Program for America Pending Peace* (New York: Viking Press, 1946), 179-181. See also Norman Friedman, *Seapower as Strategy: Navies and National Interests* (Annapolis MD: Naval Institute Press, 2001), 49. For an overview of the entire early postwar era, see Dean C. Allard, "An Era of Transition, 1945-1953," in *In Peace and War*, ed. Hagan, 290-303. On the actual employment strategy of the Navy during this period - responding to crises in the Eastern Mediterranean, the Far East, and Latin America, see Adam B. Siegel, *The Use of Naval Forces in the Post-War Era: U.S. Navy and U.S. Marine Corps Crisis Response Activity, 1946-1990*, CRM 90-246 (Alexandria VA: Center for Naval Analyses, February 1991).
[373] Task Force 125 was also designated U.S. Naval Forces North African Waters (NAVNAW). It was re-designated U.S. Naval Forces Mediterranean (NAVMED) in February 1946.
[374] The Northern European Force worked out of Plymouth England, supported from 1946 through 1950 by a U.S. Navy station ship. In the summer of 1946, COMNAVEU Admiral Kent Hewitt and six Twelfth

Fleet cruisers and destroyers, including the Northern European Force, visited Scandinavian, Low Country, and British ports. This was the first postwar U.S. Navy presence in Northern European waters, especially the Baltic, where they visited Stockholm, Sweden. See Barlow, "From the Fifth and Eighth Fleets to the Sixth and Seventh," 5. For descriptions of later Northern European Force cruises, see Captain Paul H. Grouleff, "Last Cruise of Wilkes Barre," *Shipmate* 53 (November 1990), 19-22; and "Warships and Subs Back From Europe," *Navy Times* (June 5, 1954), 5. See also "Plymouth," *All Hands* (June 1951), 14-15.

[375] Intermittent Latin American task group deployments continued, however. The new cruiser *Little Rock* circumnavigated South America twice between October 1945 and March 1946. A five-ship task group, including the new fast battleship *Wisconsin*, deployed to Chile in November 1946 for the inauguration of a new Chilean president following a disputed election. The ships also made stops in Peru, Panama and Venezuela. In March 1947, a cruiser and four destroyers deployed to Montevideo, Uruguay to show support for the new government during inauguration celebrations. And in mid-1947, a task group centered on the new fast battleship *Missouri* visited Rio de Janeiro in connection with the signing there of the Rio Treaty by President Truman and other Western Hemisphere heads of state. A more pointed deployment occurred in the late summer of 1947, when Atlantic Fleet ships and aircraft conducted surveillance and interdiction operations in the Caribbean to discourage Cuban-sponsored forces trying to invade the Dominican Republic and overthrow the Dominican President, Rafael Trujillo. See Roth, "The U.S. Navy and Marine Corps in Latin America"

[376] Operational control of the Seventh Fleet passed from General MacArthur to Fleet Admiral Nimitz in August 1945, following the Japanese surrender. In September 1945, its aircraft overflew Shanghai, its combatants demonstrated off Tsingtao, and its Seventh Amphibious Force landed an Army corps in Korea and the 1st and 6th Marine Divisions at Tientsin. In November, the Seventh Fleet re-deployed Nationalist Chinese occupation troops from North Vietnam to China. The 2d and 5th Marine Divisions were the initial occupation force on the Japanese Island of Kyushu, until relieved by Army forces in mid-1946. See Major Michael Parkyn USMC, "Operation BELEAGER: The Marine III Amphibious Corps in North China, 1945-49," *Marine Corps Gazette* 85 (July 2001), 32-37; Henry I. Shaw, *The United States Marines in North China, 1945-1949* (Washington DC: Historical Branch, G-3 Division, U.S. Marine Corps, 1960); and Charles R. Smith, *Securing the Surrender: Marines in the Occupation of Japan* (Washington DC: Marine Corps Historical Center, 1997).

[377] 1945 was the first year U.S. Navy capital ships routinely operated in the Western Pacific since Theodore Roosevelt had withdrawn the battleships from the Asiatic Squadron in 1906.

[378] On American military basing policy following World War II, see James R. Blaker, *United States Overseas Basing: An Anatomy of the Dilemma* (Westport CT: Praeger, 1990).

[379] It was Forrestal who was largely responsible for deploying U.S. Navy forces for numerous global shows of force in the first year and a half after the war. The uniformed navy's clearest thinker on forward deployment was Admiral Forrest Sherman. See Michael A. Palmer, *Origins of the Maritime Strategy, American Naval Strategy in the First Postwar Decade* (Washington DC: Department of the Navy, Naval Historical Center, 1988). For the role of the CNO and his staff from the mid-1940s through the mid-1980s, see Thomas C. Hone, *Power and Change: The Administrative History of the Office of the Chief of Naval Operations, 1946-1986* (Washington DC: Naval Historical Center, 1989)

[380] The Navy finished the war with 90% of its combatant vessels of submarine size or larger in the Pacific, along with 100% of the Marine Corps's combat strength - a force including 6 Marine divisions, 26 carriers, 64 escort carriers, and all 23 battleships.

[381] On the Eighth Fleet, see Barlow, "From the Fifth and Eighth Fleets to the Sixth and Seventh," 6-10. See also Paolo E. Coletta, *Admiral Marc A. Mitscher and U.S. Naval Aviation: Bald Eagle* (Lewiston NY: The Edwin Mellen Press, 1997), 344-353; and E.B. Potter, *Admiral Arleigh Burke* (New York: Random House, 1990), 268-78.

[382] For the roots of the changes in planned Navy employment strategy during this period, see Vincent Davis, *Postwar Defense Policy and the United States Navy, 1943-1946* (Chapel Hill, University of North

Carolina Press, 1966). Actual war planning was now done, as noted earlier, in a joint context. For the joint war plans of the period, see Steven T. Ross, *American War Plans, 1945-1950* (New York: Garland, 1988). See also Michael S. Sherry, *Preparing for the Next War: American Plans for Postwar Defense, 1941-45* (New Haven: Yale University Press, 1977). On the roots of post-war U.S. Air Force planning, see Perry M. Smith, *The Air Force Plans for Peace, 1943-1945* (Baltimore: Johns Hopkins Press, 1970).

[383] Thus it was the Eighth Fleet that got the top combat commanders - Mitscher and Burke. It was the Eighth Fleet that conducted the most demanding (and most widely-reported) exercises, in the Atlantic in the spring of 1946. And it was the Mediterranean that saw the first - if intermittent - postwar brandishing of the Navy's newest and most powerful tools of war: The surge deployments of Eighth Fleet task forces formed around the battleship *Missouri* in the spring of 1946 and the unblooded new large carrier *Franklin D. Roosevelt* in the fall.

[384] Much has been written on the Navy's deployments in the Mediterranean immediately after World War II, as befits such an innovative and seminal strategic development. On the Navy's initial turn toward Europe generally, see Peter M. Swartz, "The Navy's Search for a Strategy, 1945-1947", *Naval War College Review* 49 (Spring 1996), 102-8. On the Navy's first post-war deployments in the Mediterranean, see especially Edward J. Sheehy, *The U.S. Navy, the Mediterranean, and the Cold War, 1945-1947* (Westport CT: Greenwood Press, 1992); David J. Alvarez, *Bureaucracy and Cold War Diplomacy: The United States and Turkey, 1943-1946* (Thessaloniki, Greece: Institute for Balkan Studies, 1980); Midshipman Dennis M. Pricolo, "Naval Presence and Cold War Foreign Policy: A Study of the Decision to Station the 6th Fleet in the Mediterranean, 1945-1958," (Trident Scholar project report: U.S. Naval Academy, 1978); Lieutenant Commander Philip A. Dur, "The Sixth Fleet: A Case Study of Institutionalized Naval Presence, 1946-1968," Ph.D. diss. (Harvard University, 1975); Guy Cane, "The Build-up of U.S. Naval Force in the Mediterranean as an Instrument of Cold War Policy" (M.A. thesis: The George Washington University, 1975); and Stephen Xydis, *Greece and the Great Powers, 1944-1947* (Thessaloniki, Greece: Institute for Balkan Studies, 1963). See also Commander B. L. Gravatt, *U.S. Navy Ship-Days in the Mediterranean, 1946-1988* (Newport RI: Naval War College, Center for Naval Warfare Studies, April 1991), 7-12.

[385] The Navy deployed a carrier task force to the Arctic for experimentation every year, from 1946 to 1950, and deployed submarines to the ice every year starting in 1946: In March 1946, the Navy deployed a task force built around the new large carrier *Midway* to the Labrador Sea. This was the well-publicized Operation "Frostbite," designed to conduct cold weather operational aircraft flight experiments. That summer, a Navy task force of auxiliaries and a Coast Guard icebreaker lifted supplies for the new Army Air Forces base being built at Thule, Greenland, in the summer of 1946. This was Operation "Nanook". Accompanying the task force was the submarine *Atul*e, charged with experimenting with under-ice penetrations and cold-water torpedo shots. Also in 1946, other U.S. Navy submarines were deployed to the ice edge in the Chukchi Sea. That fall, another top-of-the-line task force deployed to the Davis Strait to conduct cold-weather experiments. Ships included the fast battleship *Missouri*, the fast fleet carrier *Kearsarge*, the new cruiser *Little Rock* and some destroyers. On "Frostbite," see Captain James L. McConaughy, Jr., "The 'Midway' Goes North," Naval Institute *Proceedings* 72 (August 1946). On *Atule*, see Marion D. Williams, "Operation Nanook," chap. in *Submarines Under Ice: The U.S. Navy's Polar Operations* (Annapolis MD: Naval Institute Press, 1998), 42-51. On the early submarine experiments, see William M. Leary, "The Challenge," chap. in *Under Ice: Waldo Lyon and the Development of the Arctic Submarine* (College Station TX: Texas A&M University Press, 1999), 3-28; and Waldo K. Lyon, "Submarine Combat In the Ice," Naval Institute *Proceedings* 118 (February 1992), 33-40. On *Missouri*'s deployments north, see Paul Stillwell, *Battleship Missouri: An Illustrated History* (Annapolis MD: Naval Institute Press, 1996). These initial

[386] For State Department constraints on Navy deployments, see Barlow, "From the Fifth and Eighth Fleets to the Sixth and Seventh," 8.

[387] The 1947 fleet also included 80 submarines (down from 232 on V-J Day); 107 amphibious ships (down from 2547); and 17,602 fixed and rotary-wing aircraft (down from 40,912). For more detail, see

Naval Historical Center, *U.S. Navy Active Ship Force Levels*; and Grossnick, *United States Naval Aviation*, 448. Numbers of active duty Navy officers and enlisted personnel dropped from 3.3 million in 1945 to less than half a million in 1947. *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47.

[388] Status of the merchant marine is from Gibson and Donovan, *Abandoned Ocean*, 169.

[389] In September 1945, the Seventh Fleet's Seventh Amphibious Force landed the 1st and 6th Marine Divisions at Tientsin. The 6th Division was inactivated in China in 1946, but the 1st Division remained, returning to the United States in 1947. Meanwhile, the 2d and 5th Marine Divisions were the initial occupation force on the Japanese Island of Kyushu. The 2d Division returned to the United States in 1946 and the 6th Division was inactivated. The 3rd and 4th Marine Divisions had been inactivated in late 1945. By 1947, the 1st Marine Division was at Camp Pendleton, California, and the 2d Marine Division was at Camp Lejeune, North Carolina. See Nofi, *Marine Corps Book of Lists*, 78-9. Marine Corps force levels were cut from 470,000 in 1945 to 93,000 in 1947. 93,000 was a far cry, however, from the Marine Corps' pre-World War II peak of 53,000 in 1918. The Army, meanwhile, was cut from 12 million men to 1.5 million men (the Army had comprised almost 3 million in 1918). *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46-7.

[390] From the end of the war through the end of 1946, the Navy clashed repeatedly with the Army, with General MacArthur, and with the civilian political leadership regarding command and control of naval operations, especially in the Far East. Details on the 1946 Outline Command Plan - the first unified command plan - are in Cole, *History of the Unified Command Plan*.

[391] The last allied commander to go was the (British) Supreme Allied Commander Mediterranean (SACMED), in July 1947. Until that time, those U.S. Navy operations in the Mediterranean that supported allied commitments in Italy came under Royal Navy operational control. Informal cooperation with allied navies continued, however, especially with the Royal Navy during crises involving Yugoslav pressures on the Italian city of Trieste. Forward deployed U.S. Navy ships continued to rely on British bases around the world, and retained their base and airfield in French Morocco. Programs to exploit captured German and Japanese naval technology were begun, and as occupiers, forward deployed U.S. Navy commands in Germany and Japan began to coordinate with and supervise German and Japanese mine and harbor clearance and river patrols.

1947-1950 deployment strategy

[392] The Cold War Navy peacetime employment strategy was one of global combat-credible forward presence (to re-assure friends and allies and to deter or intimidate adversaries) and crisis response. There is a large literature on this. See especially Linton Brooks, *Peacetime Influence Through Forward Naval Presence* (Alexandria VA: Center for Naval Analyses, October 1993). The Cold War Navy planned wartime employment strategy was one of global forward combat operations against the Soviet union and its friends and allies, featuring carrier air strikes, Navy-Marine Corps amphibious assaults, submarine warfare against enemy submarines and surface vessels of any type, and control and protection of shipping. Both employment strategies included deployments to deter nuclear war, first by aircraft carriers carrying aircraft capable of delivering nuclear weapons, and later by nuclear ballistic missile submarines. During the 1947-1950 period, while the U.S. Air Force and its sympathizers were arguing for the priority of strategic nuclear warfare in America's planned military employment strategy, the Navy emphasized the nuclear strike potential of its forward deployed carrier forces. For Navy strategic thinking in the late 1940s, see Palmer, *Origins of the Maritime Strategy*.

[393] The number of fixed-wing aircraft in the Navy Department inventory dropped from about 18,000 in 1947 to about 14,000 in 1950. See Grossnick, *United States Naval Aviation*, 448. In addition, by the start

of the Korean War in June 1950, the fleet had 72 active submarines, 79 amphibious ships, and only one battleship in commission, as against 80, 107, and 4 respectively just three years before. See Naval Historical Center, *U.S. Navy Active Ship Force Levels*. Navy active duty personnel dropped from about 498,000 in 1947 to about 380,000 in 1950. Nevertheless, Navy personnel force levels bore no resemblance to the 100,000-man navies of the two decades before World War II. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46-7.

[394] For post-World War II annual U.S. Navy building programs, see Polmar, "Navy Shipbuilding Programs , Fiscal 1947-2000," app. in *Ships and Aircraft of the U.S. Fleet* (17th edn.), 630.

[395] The Marine Corps of the late 1940s - with two divisions and two Marine air wings - was stationed principally at Camp Pendleton and El Toro, California, and Camp Lejeune and Cherry Point, North Carolina. No Marine unit of any size was based or deployed in the Western Pacific, although the U.S. Eighth Army was on occupation duty in Japan.

[396] This post-World War II low in U.S. Marine Corps active end strength was nevertheless far larger than the Corps had ever been at any time before World War II. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46-7.

[397] The U.S. Army had borne the brunt of the post-World War II cuts, dropping from 685,000 active troops in 1947 to 593,000 in 1950. This, however, still made it four times the size of the Army in the period between the two World Wars. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47.

[398] Admiral Sherman's line on forward presence is in C. W. Borklund, *Men of the Pentagon* (New York: Praeger, 1966), 25.

[399] The new fleet carrier *Valley Forge*, for example, provided *episodic* combat-credible forward presence in North China, the Persian Gulf, the Mediterranean, and Norway - all early Cold War areas of concern - on just one cruise. *Valley Forge* - at the time the newest Essex-class carrier in the fleet - cruised the world for eight months, from October 1947 to June 1948. Accompanied by two destroyers, her forward presence agenda also included visits to Australia, the Philippines, and Ceylon, as well as pre-NATO exercises with the Royal Navy. The visit to demonstrate American friendship with Australia echoed similar fleet visits there in 1908, 1925 and 1941. She was the first American carrier to circle the globe, the first to conduct flight operations in the Persian Gulf, and the first to transit the Suez Canal. On her port call at Ras Tanura, Saudi Arabia in March 1948, she hosted the Crown Prince of Saudi Arabia and his retinue on board. She continued on to Norway where, with the Northern European Force, she visited Oslo and Bergen, in the first U.S. Navy carrier visit to that country. The new Essex-class fleet carrier *Tarawa* followed in her wake the next year, minus the visits to Australia and Northern Europe. See *U.S.S.* Valley Forge *World Cruise 1947-48* (Cruise Book in Navy Library, Washington DC); and James L. Mooney, ed., *Dictionary of American Naval Fighting Ships*, vol. 7 (Washington DC: Naval Historical Center, Department of the Navy, 1981), 46.

[400] On the Navy's post-World War II shift in strategic focus from the Pacific to the Mediterranean, see Richard A. Best, *"Cooperation of Like-minded Peoples": British Influences on American Security Policy, 1945-1949* (New York: Greenwood, 1986), especially 94-6; Davis, *Postwar Defense Policy and the U.S. Navy*, 76-80, 171, 184-187; and Palmer, *Origins of the Maritime Strategy*, especially 3, 22, 28, 66,and 70-71.The shift in carrier deployment strategy can be traced in Roy A. Grossnick, *Dictionary of American Aviation Squadrons,* vol.1, *The History of VA, VAH, VAK, VAL, VAP and VFA Squadrons* (Washington DC: Department of the Navy, Naval Historical Center, 1995), Appendix 3 "Carrier Deployments by Year", 521-522. For the change in U.S. Navy Mediterranean deployment strategy, see Gravatt, *U.S. Navy Ship-Days in the Mediterranean*, 7-12.

[401] In January 1948, the 2d Marines (Rein) deployed from Camp Lejeune to the Mediterranean on an attack transport (APA) and an attack cargo ship (AKA). These ships were later relieved by others. For subsequent monthly amphibious ship force levels in the Mediterranean, see Gravatt, *U.S. Navy Ship-Days in the Mediterranean*, 9 and passim. See also Crawford et al., *The 2d Marine Division and Its Regiments.*

[402]The submarine *Spinax* made the first U.S. Navy postwar submarine deployment to the Mediterranean, from January to March 1949.

[403] As Ronald Spector has pointed out, "The creation of the Sixth Fleet together with the retention of sizeable forces in the Far East marked a departure from patterns of naval operations over the past fifty years. Since Fisher's redeployment of the British fleet and the expansion of the German Navy in the 1900s, the Great Powers had tended to keep their most powerful an modern naval forces close to home. . . Now the pattern had been broken, with the permanent stationing of the most advanced and powerful warships of the U.S. Navy far from home in positions close to the likely scene of future threat or hostilities. This practice, termed 'forward deployment,' was to continue until the end of the century and have a strong impact on all other naval issues.", *At War at Sea: Sailors and Naval Warfare in the Twentieth Century* (New York: Viking Press, 2001), 318

[404] Naval Forces Europe (NAVEU - formerly the Twelfth Fleet) became Naval Forces, Eastern Atlantic and Mediterranean (NELM) in 1947. The Northern Europe Force was sustained at Plymouth.

[405] *Valley Forge* and *Tarawa* deployed in Far Eastern waters during their around the world cruises. See Grossnick, *Dictionary of American Naval Aviation Squadrons*, vol. 1, 521-2; and *Valley Forge* cruise book.

[406] Naval Forces Western Pacific left Shanghai and Tsingtao in May 1949, as all of mainland China was falling to the Chinese communists. On the origins of the Seventh Fleet and its early role during the Chinese Civil War and in Southeast Asia, see Lieutenant Commander Joseph Sestak, "The Seventh Fleet: A Study of Variance Between Political Directives and Military Force Postures" (Ph.D .dissertation: Harvard University, 1984); Edward J. Marolda, "Through a Long Glass: U.S. Naval Leaders and the Chinese Civil War, 1945-1950", *Journal of Strategic Studies* 15 (December 1992) 528-547; and idem, "The U.S. Navy and the Chinese Civil War, 1945-1952," (Ph.D. dissertation: George Washington University, 1990).

[407] On January 29, 1950, the fleet carrier *Boxer* joined the Seventh Task Fleet in the western Pacific, resuming a permanent forward U.S. Navy carrier presence in the Western Pacific gapped since 1947. *Boxer* operated principally in Southeast Asian waters, using Subic Bay as an advanced base. While no amphibious task group was deployed with the Seventh Task Fleet yet, one was temporarily deployed in early 1950 to Naval Forces Far East in Japan, to conduct joint amphibious assault training with the Eighth U.S. Army there. In the spring of 1950, *Boxer* was relieved on forward station in the western Pacific by *Valley Forge*, another fleet carrier. On the resurrection of the Seventh Fleet, and the key role of CINCPAC/CINCPACFLT Admiral Arthur W. Radford, see Barlow, "From the Fifth and Eighth Fleets to the Sixth and Seventh," 20-23.

[408] Carrier task forces deployed in and around Davis Strait every year from 1946 through the Korean War. For example, in the fall of 1948, three carriers, two cruisers and the battleship *Missouri* - deployed to Davis Strait for more operational experimentation. This was Operation "Frigid." See Stillwell, *Battleship Missouri*, 133.

[409]Another task force, including an escort carrier and a submarine, also visited the Gulf in 1948 besides the task force with the fleet carrier *Valley Forge*. The fleet carrier *Tarawa* called at Bahrain and Jeddah in January 1949, on her round-the-world deployment. Thus two *Essex*-class carriers and an escort carrier all deployed in the Gulf in 1948-1949, in an extraordinary demonstration of U.S. interest in the region. (No large U.S. Navy carrier would enter the Gulf again, however, until *Constellation* in 1974). In January 1948, U.S. Naval Force Persian Gulf was established, under the Commander in Chief, U.S. Naval Forces Eastern Atlantic and Mediterranean. The command consisted essentially of a seaplane tender (without seaplanes) - a condition that would endure until 1956, when it would inherit the Northern European Force's brace of destroyers). Naval Force Persian Gulf was re-designated the Persian Gulf Forces in June 1949 and in August of that year it was re-designated the Middle East Force, beginning the long, slow ascent of that force to its position half a century later at the apex of U.S. Navy forward deployed forces. On the other hand, also in 1949, Submarine Squadron Six was transferred from Coco Solo, Panama to Norfolk, Virginia.

[410] In October 1948, a surface task force of a cruiser and two destroyers visited Indian and Pakistani ports, flying the flag of the Commander in Chief, U.S. Naval Forces Eastern Atlantic and Mediterranean. This was the first visit of U.S. Navy warships to the subcontinent since the independence of India and Pakistan in August 1947.

[411] Forward submarine deployments in both the Atlantic and Pacific were conducted in the late 1940s. In the Atlantic, Submarine Development Group Two (SUBDEVGRUTWO) was formed in 1949 to develop innovative tactics to be used by U.S. navy attack submarines to detect and destroy enemy submarines. From the start, the submariners believed that far forward operations hard by the Soviet coasts would be necessary. In 1949, four SUBDEVGRUTWO submarines deployed to the Norwegian and Barents Seas for the first submarine-on-submarine exercises. A fire destroyed *Cochino* during this operation, off Norway's North Cape. Similar operations were conducted in the Pacific off the Soviet Siberian coast. On the origins and subsequent history of SUBDEVGRU TWO, see Captain Frank Andrews (Retired), "The Evolution of SubDevGroup Two," *Submarine Review* (April 1983), 4-17. On the *Cochino* disaster, see Sherry Sontag and Christopher Drew, "A Deadly Beginning," chap. in *Blind Man's Bluff: The Untold Story of American Submarine Espionage* (New York: Public Affairs, 1998), 1-24; and William J. Lederer, *The Last Cruise* (New York: William Sloane, 1950). On the early post-war forward submarine operations in the Pacific, see Packard, *Century of U.S. Naval Intelligence*, 123.

[412] The number of actual employment strategy responses in the Mediterranean and Europe is well-aligned with the primacy of the Mediterranean in the Navy's deployment strategy of the period. On the employment of U.S. Navy forces in smaller scale contingencies and operations other than war during this period, see Siegel, *The Use of Naval Forces in the Post-War Era.*

[413] The new Air Force, unlike the other services, grew considerably in personnel during this period, from 305,000 at its creation in 1947 to 411,000 in 1950. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47. Upon achieving separation from the Army, the Air Force began arguing for a larger budget slice, a monopoly on the strategic nuclear strike role for the Strategic Air Command, and no funding for the next generation of Navy carriers. Meanwhile, a beleaguered U.S. Army questioned the efficacy of future amphibious operations. The Navy feared loss of control and/or gutting of its two most important forward offensive elements: naval strike aviation and Navy-Marine Corps amphibious assault capabilities. Inter-service rivalry, especially between the Air Force and the Navy, was intense during this period, and spawned a large literature. See especially Jeffrey G. Barlow, *Revolt of the Admirals: The Fight for Naval Aviation, 1945-1950* (Washington DC: U.S. Government Printing Office, 1994); and idem, *Navy and Marine Corps Documents on Service Roles and Missions, 1946-1961*, (Washington DC: Naval Historical Center, 1994).

[414] For the origins of and sequels to these events, see Ronald H. Cole, et al., *The History of the Unified Command Plan, 1946-1993* (Washington DC: Joint History Office, Office of the Chairman of the Joint Chiefs of Staff, February 1995). On the struggle to create the commands in the Pacific, see Clark G. Reynolds, *Admiral John H. Towers: The Struggle for Naval Air Supremacy* (Annapolis MD: Naval Institute Press, 1991), 524-531.

[415] Continuing the practice from World War II, the Joint Chiefs of Staff assigned one of their number as executive agent for each unified and specified command. This assignment both reflected and reinforced individual service predominance in each joint command. Thus the Chief of Naval Operations was the executive agent for the joint Atlantic and Pacific commands, and for Naval Forces Eastern Atlantic and Mediterranean (NELM). Not surprisingly, the bulk of U.S. Navy forces deployed in the Pacific were assigned to the joint Pacific Command and the Seventh Fleet, not to Naval Forces Far East (which is what Naval Forces Japan became, as the naval component of General MacArthur's joint Far East Command). The initial command relations of Commander, U.S. Naval Forces Western Pacific were particularly labyrinthine: The command was subordinate in peacetime to the Commander in Chief of the Pacific Command, but subordinate to the Joint Chiefs of Staff for all military activities within and surrounding China. When operating in Japanese waters or in the event of an emergency in Northeast Asia, however, it was to come under the Commander in Chief of the Far East Command, General MacArthur. Naval

Forces Western Pacific in 1948 and 1949 normally included a cruiser division, three destroyer divisions, a small amphibious task group, and logistic support ships, including station ships at Tsingtao and Shanghai. With the standing up of the Far East Command and its naval component, Naval Forces Far East, those commands took over responsibility for patrols off Korea that had previously been the responsibility of Naval Forces Western Pacific. Naval Forces Far East normally was assigned a cruiser, four destroyers, and support ships and craft. On the U.S. Navy in Japan during the early postwar period, see Chief Aviation Machinist's Mate M.D. Ingram, "The United States Navy in Japan, 1945-1950", Naval Institute *Proceedings* 78 (April 1952), 379-383; and Roger Dingman, "The U.S. Navy and the Cold War: The Japan Case" in Craig L. Symonds et al. (eds*.), New Aspects of Naval History: Selected Papers Presented at the Fourth Naval History Symposium, United States Naval Academy, 25-26 October 1979* (Annapolis MD: Naval Institute Press, 1981), 291-311.

[416] While not formally allied at the time, U.S. Navy and Royal Navy warships cooperated closely in Chinese waters. In November 1948 and April 1949, U.S. Naval Forces Western Pacific and Royal Navy cruisers deployed to Shanghai to protect American and British nationals. On U.S. Navy sponsorship of German maritime forces, see Douglas Peifer, "Forerunners to the West German Bundesmarine: The Klose Fast Patrol Group, the Naval Historical Team Bremerhaven, and the U.S. Navy's Labor Service Unit (B)", *International Journal of Naval History*, 1 (April 2002) (Published on-line at http://www.ijnhonline.org)

[417] The regional planning groups set up in 1949 by the North Atlantic Treaty powers included a North Atlantic Ocean Regional Planning Group and a Southern Europe/Western Mediterranean Regional Planning Group. They were superseded by a hierarchical NATO military command structure a few years later. See Maloney, *Securing Command of the Sea*, 95-100.

[418] Three U.S. Navy destroyers and a French warship were placed under United Nations command in 1948 in support of a United Nations mediator enforcing an Arab-Israeli truce. A U.S. Navy carrier (without and air group) and an amphibious attack cargo ship (AKA) also supported the UN effort. This was the first instance of U.S. Navy warships flying the UN flag. See Frank Uhlig, Jr., "The First United Nations Force," Naval Institute *Proceedings*, 77 (February 1951), 201.

1950-1972 deployment strategy

[419] For a graphic depiction of this transformation, contrasting the deployment locations of U.S. Navy ships during the Berlin Crisis of 1948 and 1949 with those during the 1954 Dien Bien Phu crisis, see Floyd D. Kennedy, Jr. et al., *Trends in Force Levels and Disposition of Major Navies Since World War II*, CNR 145 (Revised) (Alexandria VA: Center for Naval Analyses, June 1989), F-1 and F-3. For an overview of this era, see Floyd D. Kennedy, Jr., "The Creation of the Cold War Navy, 1953-1962," in *In Peace and War*, ed. Hagan, 304-26.

[420] The Sixth Task Fleet was re-designated the U.S. Sixth Fleet in February 1950. Sixth Fleet force levels during this period normally averaged about 40 warships. See Gravatt, *U.S. Navy Ship-Days in the Mediterranean*; and Dur, "The Sixth Fleet," 160. With its nuclear strike capability and missions, the Sixth Fleet (and its Atlantic Fleet parent), not the Seventh, deployed the large carriers - Navy's crown jewels - all during the Korean War and beyond. See Miller, *Nuclear Weapons and Aircraft Carriers*. From the Korean War on, the Sixth and Seventh Fleets each routinely deployed two fleet carriers forward permanently. A large Midway-class carrier finally deployed to the Western Pacific in 1955.

[421] The Seventh Task Fleet was re-designated the U.S. Seventh Fleet in February 1950. On the eve of the Korean War it consisted essentially of a carrier task force and four submarines. Regular deployments of Seventh Fleet carrier task forces into the Indian Ocean began in late 1973, but there were occasional sorties before then. In December 1972 and January 1973, a carrier task force centered on *Enterprise* and

an Amphibious Ready Group had deployed into the Bay of Bengal during the Indo-Pakistani War. For an analysis of that deployment, see Lieutenant Commander Kenneth R. McGruther, "The Role of Perception in Naval Diplomacy," *Naval War College Review*, 27 (September-October 1974), 3-20.

[422]. One of the very first vital naval operations of the war was joint: Months before the September 1950 joint assault on Inchon, Navy amphibious ships loaded elements of the U.S. Eighth Army in Japan and landed them at Pohang-dong, to reinforce the Pusan Perimeter. Meanwhile, elements of the 1st Marine Division were readying themselves for deployment to Korea from California. At the same time, in another example of naval flexibility, the forward-deployed Mediterranean amphibious task force and its Marines swung through the Suez Canal and steamed across the Indian Ocean and the China Seas to reinforce the U.S. forces in Korea with troops ready for combat. After the Chinese entered the war in December 1950, Naval Forces Far East conducted the largest evacuation under fire in its history - pulling one Marine and two Army divisions and a South Korean Army corps out of Hungnam, in North Korea. For recent scholarship on U.S. Navy deployments and operations during the Korean War, see Thomas B. Buell's superb *Naval Leadership in Korea: The First Six Months* (Washington DC: Naval Historical Center, 2002); Joseph H. Alexander, *Fleet Operations in a Mobile War, September 1950-June 1951* (Washington DC: Naval Historical Center, 2001); Donald Chisholm's excellent "Negotiated Joint Command Relationships: Korean War Amphibious Operations, 1950", *Naval War College Review*, 53 (Spring 2000), 65-124; and Curtis A. Utz, *Assault from the Sea: The Amphibious Landing at Inchon* (Washington DC: Naval Historical Center, 1994). See also James A. Field, Jr., *History of United States Naval Operations: Korea* (Washington DC: U.S. Government Printing Office, 1962); Commander Malcolm Cagle and Commander Frank A. Manson, *The Sea War In Korea* (Annapolis MD: U.S. Naval Institute, 1957). For U.S. Navy deployments to the Western Pacific up to 1959, see Rear Admiral Edwin Bickford Hooper (Retired), Dean C. Allard and Oscar P. Fitzgerald, *The United States Navy and the Vietnam Conflict, Volume I: The Setting of the Stage to 1959*, (Washington DC: Naval History Division, Department of the Navy, 1976).

[423] On the increased Navy strategic focus on the Pacific, starting in the mid-1950s, see Admiral Robert Carney, "Principles of Sea Power", Naval Institute *Proceedings* 81 (September 1955), 977; and David Alan Rosenberg, "Arleigh Albert Burke", in *The Chiefs of Naval Operations*, ed. Love, 274.

[424] Both wars saw Atlantic Fleet ships routinely deployed to the Pacific to strengthen the Seventh Fleet. While these deployments caused extensive disruptions in the lives of those who experienced them, they did not alter, however, the Navy's fundamental global deployment strategy during this period. On U.S. Navy deployments and operations during the Vietnam War, see Edward J. Marolda, *By Sea, Air, and Land: An Illustrated History of the U.S. Navy and the War in Southeast Asia* (Washington DC: Department of the Navy, Naval Historical Center, 1994); Edward J. Marolda and G. Wesley Pryce, III, *A Short History of the United States Navy and the Southeast Asia Conflict, 1950-1975*, Washington DC: Naval Historical Center, Department of the Navy, 1984); Edward J. Marolda and Oscar P. Fitzgerald, *The United States Navy and the Vietnam Conflict: Volume II: From Military Assistance to Combat, 1959-1965* (Washington DC: Naval Historical Center, Department of the Navy, 1984); and Frank Uhlig, Jr., ed. *Vietnam: The Naval Story* (Annapolis MD: Naval Institute Press, 1986).

[425] Besides Korean and Vietnam War operations, the Seventh Fleet was also charged after 1950 with patrolling the Taiwan Strait and responding to various crises there. See Edward J. Marolda, "Hostilities Along the China Coast during the Korean War," in *New Interpretations in Naval History: Selected Papers from the Eleventh Naval History Symposium, Held at the United States Naval Academy, 21-23 October 1993* (Annapolis MD: Naval Institute Press, 2001), eds. Robert W. Love, Jr. et al., 351-93; and idem, "Invasion Patrol: The Seventh Fleet in Chinese Waters," in *A New Equation: Chinese Intervention Into the Korean War* (Washington DC: Naval Historical Center, Department of the Navy, 1991), 13-28. The Seventh Fleet also evacuated almost a half-million Vietnamese from North to South Vietnam in "Operation Passage to Freedom" in 1954 and 1955, coordinating in an ad hoc coalition operation with Royal Navy and French Navy warships. See Hooper et al., "Passage to Freedom", chap. in *The United States Navy and the Vietnam Conflict, Volume I.*

[426] The Sixth Fleet, however, conducted a variety of military operations other than war, Including numerous shows of force and deployments responding to crises, especially during the Arab-Israeli Wars of 1956, 1967 and 1973. Three Sixth Fleet amphibious groups landed three Marine battalion landing teams (BLTs) in Lebanon in 1958, covered by three carrier task forces. Within a few days, the Marines were joined by a reinforced U.S. Army airborne brigade airlifted from Germany and a U.S. Air Force composite strike group from the United States. See R. Spiller, *"Not War But Like War": The American Intervention in Lebanon* (Ft. Leavenworth KS: August 1981). The Sixth Fleet began deploying warships into the Black Sea in 1960. See William J. Aceves, "Diplomacy at Sea: U.S. Freedom of Navigation Operations in the Black Sea," *Naval War College Review* 46, (Spring 1993), 59-79.

[427] During this period, the Navy's planned employment strategy focused on the use of naval forces in limited wars, but did not neglect potential problems of global war with the Soviets. See Edward J. Marolda, "The Influence of Burke's Boys on Limited War," Naval Institute *Proceedings*, 107 (August 1980), 36-41; Richard Erik Hegmann, "In Search of Strategy: The Navy and the Depths of the Maritime Strategy" (Ph.D. diss.: Brandeis University, 1991); and idem, "Reconsidering the Evolution of the U.S. Maritime Strategy 1955-1965," *Journal of Strategic Studies* 14 (September 1991), 299-331. The most thoughtful statement of U.S. Navy declaratory strategy during this period was Rear Admiral J.C. Wylie, *Military Strategy: A General Theory of Power Control* (Princeton NJ: Princeton University Press, 1967)

[428] On the employment of U.S. Navy forces in smaller scale contingencies and operations other than war during this period, see Siegel, *The Use of Naval Forces in the Post-War Era.*

[429] The Middle East Force included a specially configured flagship and - after 1956 - a small destroyer force. In the early 1970s, with the winding down of the Vietnam War and the increase in attention being paid to South and Southwest Asia developments, the Seventh Fleet began to deploy carrier task forces into the Indian Ocean. Also, a South Atlantic Force (SOLANT) was re-established in 1958, this time at Trinidad. From the 1950s through the 1970s, an Amphibious Ready Group (ARG) was maintained on station afloat in the Caribbean. Starting in 1960, a SOLANT squadron circumnavigated Latin America annually on UNITAS operations aimed at strengthening Latin American navies and influencing their governments. Numerous major but brief deployments to the Caribbean "Near Abroad" were occasioned by various crises, especially the Guatemalan Crisis of 1954, the Cuban Missile Crisis of 1962 and the Dominican Crisis of 1965. During the Cuban Missile Crisis, the Second Fleet deployed a blockade force and an anti-submarine warfare force, while the Marines reinforced the Guantanamo Bay naval base. The South Atlantic Force deployed "Amity" cruises to African ports beginning in the late 1950s and continuing through the 1960s. Also, in 1960, the carrier *Wasp* was stationed off the mouth of the Congo River to evacuate American nationals from the Congo and deliver fuel to United Nations forces in that newly independent and strife-torn country. On the Caribbean amphibious task force, see Karen Domabyl Smith et al., *Is NAVSO Organized and Staffed to Do Its Job?*, CRM D0005057.A1/Final (Alexandria VA: Center for Naval Analyses, January 2002), 79, n.54. On the "Unitas" deployments, see Patrick H. Roth, *An Analysis of the UNITAS Deployment* (Alexandria VA: Center for Naval Analyses, CIM 529/ September 1997), especially 12 and 29-33. On Navy deployments during the Cuban Missile Crisis, see Curtis A. Utz, *Cordon of Steel: The U.S. Navy and the Cuban Missile Crisis* (Washington DC: Naval Historical Center, 1993); Major John M. Young, *When the Russians Blinked: The U.S. Maritime Response to the Cuban Missile Crisis* (Washington DC: History and Museums Division, Headquarters, U.S. Marine Corps, 1990); and Bouchard, "The 1962 Cuban Missile Crisis", in his *Command in Crisis*. On the Dominican deployments, see *Caribbean Tempest: The Dominican Republic Intervention* (Washington DC: Naval Historical Center, 1990); Bruce Palmer, *Intervention in the Caribbean: The Dominican Crisis of 1965* (Lexington KY: University Press of Kentucky, 1989); and Herbert G. Schoonmaker, *Military Crisis Management: U.S. Intervention in the Dominican Republic, 1965* (Westport CT: Greenwood Press, 1990). On the "Amity" deployments, see Richard K. Smith et al., *Cold War Navy* (Falls Church VA: Lulejian & Associates, Inc., March 1976), 17-10 and 17-11.

[430] The Northern European Force was forward-based in Plymouth England from 1946 through 1956. The Middle East Force flagship was forward-based in Bahrain since 1949. Three Sixth fleet logistics ships were forward-based in Barcelona, Spain starting in 1955, and the Sixth Fleet flagship started deploying from a forward base in France (later shifted to Italy) in 1956. The Seventh Fleet flagship followed suit in 1959, deploying from a forward base in Japan. Tenders for fleet ballistic missile submarines were forward-based in Holy Loch, Scotland starting in 1961, and in Rota, Spain and Guam in 1964. During the

Vietnam War, the Navy re-commissioned several mobile logistics force ships to act as forward afloat sea bases in the rivers and harbors of Vietnam.

[431] On "Mainbrace," the first such major NATO naval exercise, held in September 1952, see Rear-Admiral H.E. Horan RN "Exercise Main-Brace," *RAF Quarterly and Commonwealth Air Forces Journal* 5 (January 1953), 33-39; CDR Harold Bradley Say USNR, "Mainbrace - Potential Becomes Reality," U.S. Naval Institute *Proceedings* 79 (January 1953), 75-81; and "Russia Can be Hit from Two Seas," *U.S. News and World Report* 33 (September 26, 1952), 13-15. For a critical (but parochial) view, see John F. Loosbrock, "Carriers to the Rescue?" *Air Force*, 35 (December 1952), 16-21; and "There is no Easy Way Out -- A Second Look at Mainbrace," *Air Force* 36 (January 1953), 21-23.
On the shift in U.S. Navy strategic focus toward the Northeastern Atlantic, see Mats Berdal, *Forging a Maritime Alliance: Norway and the Evolution of American Maritime Strategy, 1945-1960* (Oslo, Norway: Institutt for Forsvarsstudier, 1993), 23-25, 67-69.

[432] On the Sixth Fleet during the 1956 Suez crisis, see Thomas A. Bryson, "Mission of Mercy," *Proceedings/Supplement* March 1985, 89-96; Lieutenant Commander William B. Garrett "The U.S. Navy's Role in the 1956 Suez Crisis," *Naval War College Review* 22 (March 1970), 66-78; Marshall Smelser, "The Amiable Armada: Operations of the United States Sixth Fleet During the Suez War," (South Bend IN: University of Notre Dame, (undated) (unpublished ms. in Navy Library, Naval Historical Center, Washington DC); and *Suez Crisis, 1956*, CRC 262 (Alexandria VA: Center for Naval Analyses, April 1974).

[433] In 1957, the diesel-powered submarine *Gudgeon* became the first American submarine to circumnavigate the globe. In 1960, the brand new nuclear-powered radar picket submarine *Triton* completed the first-ever *submerged* circumnavigation of the globe. In 1964, the carrier *Enterprise*, the cruiser *Long Beach*, and the frigate (large destroyer) *Bainbridge* - all nuclear-powered warships - formed Nuclear Task Force One and circumnavigated the globe in Operation "Sea Orbit," touching every continent. Several carriers, including *Wasp*, *Hornet*, *Midway*, and *America* also made round-the-world crises during this period, with surface combatant escorts. On *Gudgeon*, see *Dictionary of American Naval Fighting Ships*, vol. 3 (Washington DC: Navy Department, Office of the Chief of Naval Operations, Naval History Division, 1968), 181. On *Triton*, see Captain Edward L. Beach, *Around the World Submerged: The Voyage of the* Triton (New York: Holt, Rinehart and Winston, 1962). On Nuclear Task Force One, see *U.S.S.* Enterprise*, CVAN-65, Mediterranean Cruise, Operation Sea Orbit* (Cruise book in Navy Library, Washington DC).

[434] Active ship force levels during this period fluctuated from 634 ships in 1950 to 1122 in 1953, 812 in 1960, 900 in 1962, 932 in 1968 and 641 in 1973. See Naval Historical Center, *U.S. Navy Active Ship Force Levels*.

[435] There were 23 active carriers in 1966, 19 in 1970, and 17 in 1972. Ibid.

[436] The number of strategic submarines stayed at 41 through 1980, then dropped as a result of strategic arms control agreements between the United States and the Soviet Union. Meanwhile, the number of active amphibious ships declined significantly from 226 in 1953 to 162 in 1967 to 77 in 1972. Ibid. Navy active duty personnel end-strength fluctuated from 380,000 in 1950 to a Korean War peak of 824,000 in 1952 to 616,000 in 1960 to a Vietnam War peak of 773,000 in 1969 to 587,0000 in 1972. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47-8.

[437] The total number of fixed-wing aircraft in the Navy Department inventory had risen to a Cold War peak of 16,440 in 1955, before beginning a slow, steady decline. The Navy had 58 blimps in 1950 and 61 in 1955, but none after 1962. See Grossnick, *United States Naval Aviation*, 448-9.

[438] In January 1954, to strengthen civilian control of the military, President Dwight Eisenhower made the service secretaries the executive agents for unified and specified commands, rather than the Chief of Naval Operations and other service chiefs. In fact, this arrangement changed little, so in 1958, legislation was passed that took the services out of the operational chain of command and eliminated the concept of service executive agency altogether. Through their administrative lines of command to the service component commanders, however, the service chiefs continued to exercise powerful influence on their

services' employment in joint operations under the unified commanders. Meanwhile, in 1966 the Navy's long-autonomous technical bureaus were brought under the command of the CNO with the creation of a Naval Material Command, which subsumed all the technical bureaus (now styled Systems Commands) and their laboratories under it, and which reported directly and completely to the CNO. CITE. On the erosion of the CNO's operational influence during the tenure of Admiral Arleigh Burke - the "last CNO" - see David Alan Rosenberg, "Arleigh Burke", in *Quarterdeck and Bridge: Two Centuries of American Naval Leaders*, ed. James C. Bradford, (Annapolis MD: Naval Institute Press, 1997). The changing position of the CNO in the post-World War II national chain of operational command can be traced in Commander Joseph Bouchard, *Command In Crisis: Four Case Studies* (New York: Columbia University Press, 1991).

[439]By 1963, for example, operational command of the Sixth Fleet had passed completely to the Commander in Chief, U.S. European Command (and NATO Supreme Allied Commander, Europe), normally an Army general.

[440] The United States had exploded its first atomic bombs in 1945; the Soviet Union followed in 1949. Also in the late 1940s, the U.S. Air Force Strategic Air Command deployed its first inter-continental bomber (the B-36). The Navy achieved a rudimentary nuclear strike capability by the early 1950s.

[441] The nuclear-powered ballistic missile submarine (SSBN) and its weapons system were conceptualized and developed in the late 1950s. By 1960, the first SSBN was at sea on patrol in the Atlantic, by 1963 in the Mediterranean, and by 1964 in the Pacific. By 1967, there were 41in the fleet - a number that would remain constant until 1979. The initial short range of their missiles necessitated a forward deployment strategy for these forces too, and advanced basing sites for them were set up utilizing tenders in Scotland, Spain and Guam. On the Navy's strategy regarding procurement and deployment of strategic missile submarines, see David A. Rosenberg, "Process: The Realities of Formulating Modern Naval Strategy", in *Mahan is Not Enough: The Proceedings of a Conference on the Works of Sir Julian Corbett and Admiral Sir Herbert Richmond*, eds. James Goldrick and John B. Hattendorf (Newport RI: Naval War College Press, 1993), 141-175. See also Davis, "Case No. 3: The Development of Fleet Ballistic Missiles," chap. in *The Politics of Innovation*, 31-41.

[442] Thus a joint Continental Air Defense Command (CONAD) was created in 1954 to destroy Soviet bombers, using Army and Air Force missiles and Air Force and some Navy fighters. For detection, vast radar belts and air defense combat information processing centers were built across the northern United States, Canada and North Atlantic and North Pacific islands. To fill in the gaps in radar coverage between the islands and North America, from 1954 to 1965 the Atlantic and Pacific Fleets as well as Navy commands under CONAD deployed land-based early warning aircraft and sea-based radar platforms - converted destroyer escorts (DERs) and converted Liberty ships (AGRs). The arrival of intercontinental ballistic missiles (ICBMs) in the Soviet arsenal and the deployment of satellite-based detection systems ended this innovative but short-lived effort. For an excellent study of Navy homeland defense deployment and operations in the 1950s and 1960s, see Captain Joseph F. Bouchard, "Guarding the Cold War Ramparts: The U.S. Navy's Role in Continental Air Defense", *Naval War College Review*, 52 (Summer 1999), 111-135; and Lieutenant Commander Leigh Armistead, "The Spirit of the Barrier", chap. in *AWACS and Hawkeyes: The Complete History of Airborne Early Warning Aircraft* (St. Paul MN: MBI Publishing Company, 2002), 1-19. Later, the Navy used some of the systems, especially the DERs, to attempt to stem the flow of supplies by sea from North Vietnam to their forces in the South during the Vietnam War - a case of "extended homeland defense".

[443] Anti-Soviet submarine warfare efforts proceeded on a number of tracks: A network of underwater sensors to detect Soviet submarine movements at very long range was developed in the 1950s; by the 1970s it crisscrossed the world's oceans. The network, called SOSUS from 1952 through 1985, went through a variety of names and code words. At the same time, a fleet of P2 Privateer land-based maritime patrol aircraft were deployed globally, to use the data gathered by the underwater system to track and possibly attack the submarines themselves. A complementary fleet of diesel-powered and later nuclear-powered attack submarines likewise began to be independently deployed in the 1950s forward into northern waters hard by the Soviet littorals, to detect, track and practice sinking Soviet submarines, including missile submarines, as they left their ports. And from 1957 through the early 1970s, specially-configured antisubmarine warfare carrier task forces were deployed to open-ocean areas not yet covered

or coverable by the other systems. On the Navy's deployment and other strategies for anti-submarine warfare in the early and mid-Cold War, see the now-declassified three-volume study *Sea-Based Anti-Submarine Warfare 1940-1977* (Alexandria VA: R.F. Cross Associates, Ltd., 1978). On the origins of SOSUS, see ibid.; Gary E. Weir, "Refining a Dialogue: The Project Hartwell Summer Study and Cold War Naval Ocean Surveillance, 1937-1961," *International Journal of Naval History* 1 (April 2002); and "Integrated Undersea Surveillance System (IUSS) History, 1950-1997", IUSS-Caesar Alumni Association website, http://home.attbi.com/~cybermed/history.htm. On forward submarine operations during this period, see Vive Admiral Charles H. Griffiths (Retired), *Oral History*, conducted by David F. Winkler (Washington DC: Naval Historical Foundation, 2002, 21, 27-8); James Bamford, *Body of Secrets: From the Cold War through the Dawn of a New Century* (New York: Doubleday, 2001), 104-9, 167-72; Roger C. Dunham, *Spy Sub: A Top Secret Mission to the Bottom of the Pacific* (Annapolis MD: Naval Institute Press, 1996); Admiral William J. Crowe, Jr. (Retired), with David Chanoff, *The Line of Fire: From Washington to the Gulf, the Politics and Battles of the New Military* (New York: Simon and Schuster, 1993), 33-4; and Admiral Harry D. Train (Retired), *Oral History: Interview with Paul Stillwell* (Annapolis MD: U.S. Naval Institute, 15 July 1986), 1-69. See also Jim Ring, *We Come Unseen: The Untold Story of Britain's Cold War Submariners* (London: John Murray, 2001).

[444]The U.S. Marine Corps in this period achieved its goals of a robust end-strength, a permanent divisional structure & membership by the Commandant on the Joint Chiefs of Staff. The two active Marine divisions and air wings in existence at the start of the Korean War were augmented by a third in 1952. That same year Congress mandated a permanent three-wing, three-division structure for the Corps, and membership by the Commandant on the Joint Chiefs of Staff when it considered matters of direct concern to the Marine Corps. Along with that went elevation to a status equal to that of the Navy and its Chief of Naval Operations within the Navy Department, including direct access to the Secretary of the Navy. Meanwhile, the Assistant Commandant was given three-star rank during the Korean War (and four-star rank during the Vietnam War). The Korean War ended with the 1st Marine Division in Korea (where it had deployed from Camp Pendleton, California in 1950); the 2d Division at Camp Lejeune, North Carolina, prepared for European contingencies; and a re-activated 3d Division just formed. After the war, the 3d Marine Division deployed from California to Japan and - in 1956 - to Okinawa, while the 1st Marine Division returned to California from Korea in 1955. At the same time, a brigade of the 3d Division was deployed to Hawaii. Also, from 1960 on, the 3d Marine Division deployed an afloat Marine battalion on board a Navy Amphibious Ready Group in the Western Pacific, similar to that which had been deployed in the Mediterranean since 1948. In 1965 and 1966, both the 1st and 3d Marine Divisions deployed to Vietnam for the Vietnam War (alongside a briefly re-created 5th Marine Division), returning to California and Okinawa between 1969 and 1971. Elements of the 2d Marine Division deployed for the Lebanon Intervention of 1958, the Cuban Missile Crisis of 1962, and the Dominican Republic Intervention of 1965. Marine Corps end-strength rose during the Korean War from 75,000 in 1950 to 250,000 in 1953. Marine strength never returned to its pre-Korean War level, however, settling at around 190,000 for the most of the Cold War (except during the Vietnam War, when it rose again to peak at 310,000 in 1969). See Crawford et al., *The 1st Marine Division and Its Regiments*; idem, *The 2d Marine Division and Its Regiments*; and Reference Section, Historical Branch, *The 3d Marine Division and Its Regiment*s, (History and Museums Division, Headquarters, U.S. Marine Corps, 1983). For the Marines of the 3d Division deployed on Okinawa, see also Nicholas Evan Sarantakes, *Keystone: The American Occupation of Okinawa and U.S. Japanese Relations* (College Station TX: Texas A&M University Press, 2000), 66-71. For Marine Corps force levels, see *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47-8.

[445] The Coast Guard contributed heavily - five cutters and 26 patrol boats - to Operation "Market Time", the coastal defense effort to stem the flow of North Vietnamese supplies into the South. See Alex Larzelere, *The Coast Guard at War: Vietnam 1965-1975* (Annapolis MD: Naval Institute Press, 1997). Also, in 1965, the Coast Guard took over the Navy's ice-breaking responsibilities and ships, and in 1967 the service was transferred from the Treasury Department to a new Department of Transportation.

[446] For budget comparisons among the services, see any recent edition of Office of the Undersecretary of Defense (Comptroller), *National Defense Budget Estimates ("The Green Book") for FY 1998*, or subsequent years *(*Washington DC). For personnel figures, see *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47-8.

[447] A Royal Navy carrier task force joined Seventh Fleet warships in stemming the North Korean invasion very early in the war. By the time the war ended, U.S. Navy forces in Korean waters had operated with warships from the Republic of Korea, the United Kingdom, Australia, Canada, New Zealand, Thailand, Colombia, Denmark, the Netherlands and France. The largest contingent by far was American, but the Royal Navy deployed two dozen ships to Korea, and Australia and Canada contributed 3 or 4 warships each. Also, Japanese-crewed amphibious and mine warfare ships were essential to American amphibious assaults and evacuations during the war. U.S. naval commanders exercised command over all these United Nations naval forces. A multinational carrier task force, under Royal Navy command, operated off the west coast of Korea for the bulk of the war. For a brief period, the Royal Navy task force commander also commanded all United Nations task forces around Korea, including U.S. Navy forces.

[448] The Cuban Quarantine employed Argentine, Venezuelan, Dominican and Uruguayan warships, as well as a major Canadian contribution of warships and maritime patrol aircraft.

[449] Vietnam also saw the employment of naval forces in a major effort to protect the coasts of South Vietnam from enemy infiltration: Operation "Market Time." This U.S. Navy homeland defense of another country's homeland ran from 1965 through 1970. See Clarence E. Wunderlin, Jr., "Paradox of Power: Infiltration, Coastal Surveillance, and the United States Navy in Vietnam, 1965-68," *Journal of Military History* 53 (July 1989), 275-89; Thomas J. Cutler, *Brown Water, Black Berets: Coastal and Riverine Warfare in Vietnam* (Annapolis MD: Naval Institute Press, 1988); Edward J. Marolda, "The War in Vietnam's Shallows," *Naval Histor*y 1 (April 1987), 12-19; and H.D. Cluck, *Market Time Effectiveness*, Operations Evaluation Group Study 738 (Arlington VA: Center for Naval Analyses, May 1970).

[450] On the creation of the NATO maritime commands, see Maloney, *Securing Command of the Sea.* On NATO at sea, see also Joel J. Sokolsky, *Seapower In the Nuclear Age: The United States Navy and NATO, 1949-80* (Annapolis MD: Naval Institute Press, 1991; and Robert S. Jordan, *Alliance Strategy and Navies: The Evolution and Scope of NATO's Maritime Dimension* (New York: St. Martin's Press, 1990). On the origins of the NATO Standing Naval Force Atlantic, to which the U.S. Navy contributed a small number of ships and personnel from the late 1960s on, see John Hattendorf, "NATO's Policeman on the Beat: The First Twenty Years of the Standing Naval Force, Atlantic, 1968-1988," chap. in idem, ed., *Naval History and Maritime Strategy: Collected Essays* (Malabar FL: Krieger Publishing Company, 2000).

[451] 1952 saw the first large NATO maritime exercises. In the spring, 200 warships from the U.S. Sixth Fleet and the British, French and Italian navies participated in Exercise "Grand Slam" in the Mediterranean. A similarly-sized NATO fleet, including four U.S. Second Fleet carriers, conducted Exercise "Mainbrace" in the Norwegian Sea later that year.

[452] The most important combined relationship for the U.S. Navy during this period - as in most periods - was with the Royal Navy. For an analysis, see Eric Grove and Geoffrey Till, "Anglo-American Maritime strategy in the Era of Massive retaliation, 1945-60," and Joel J. Sokolsky, "Anglo-American Maritime Strategy in the Era of Flexible Response, 1960-80," in *Maritime Strategy and the Balance of Power*, eds. Hattendorf and Jordan, 271-303 and 304-329.

[453] On the Navy in the 1970s, see Admiral Elmo R. Zumwalt, Jr., *On Watch: A Memoir* (New York: Quadrangle, 1976); Thomas H. Etzold, "The Navy and National Security Policy in the 1970s," in *Military Planning in the Twentieth Centur*y, ed. Harry R. Borowski (Washington DC: Office of Air Force History, U.S. Air Force, 1986); and Lawrence J. Korb, "The Erosion of American Naval Pre-eminence, 1962-1978," in *In Peace and War*, ed. Hagan, 327-346. On the Navy's operations in response to crises during this period, in the Middle East and elsewhere, see H.H. Gaffney et al., *U.S. Naval Responses to Situations, 1970-1999*, CRM D0002763.A2/Final (Alexandria VA: Center for Naval Analyses, December 2000); and Siegel, *The Use of Naval Forces in the Post-War Era.* On forward submarine operations in the 1970s, see Leary, *Under Ice*, 250-1; *Fast Attacks and Boomers* (museum exhibit), Washington DC: National Museum of American History, Smithsonian Institution, 2000-2003); and the companion website: "Fast Attacks and Boomers," online at www.americanhistory.si.edu/subs

[454] As noted earlier, the Northern European Force had been forward-based in Plymouth England from 1946 through 1956. The Middle East Force flagship had been forward-based in Bahrain since 1949 (in 1972, *LaSalle*, a converted amphibious transport dock (APD), replaced the last converted seaplane tender as the Middle East Force flagship - a major upgrade). Three Sixth fleet logistics ships had been forward-based in Barcelona, Spain starting in 1955, and the Sixth Fleet flagship - a cruiser - started deploying in 1956 from a forward base in France (shifted to Italy in 1967). The Seventh Fleet flagship - also a cruiser - followed suit in 1959, deploying henceforth from a forward base in Japan. Tenders for fleet ballistic missile submarines were forward-based in Holy Loch, Scotland starting in 1961, and in Rota, Spain and Guam in 1964.

[455] Much of the impetus for forward basing came from Admiral Elmo R. Zumwalt, Jr., Chief of Naval Operations from 1970 through 1974. For his views and actions regarding forward basing, see his *On Watch*, chap. 6. For the methods he used to effect change, see Jeffrey I. Sands, *On His Watch: Admiral Zumwalt's Efforts to Institutionalize Strategic Change*, CRM 93-22, (Alexandria VA: Center for Naval Analyses, July 1993).

[456] Eight destroyers began forward basing in Phaleron Bay, near Athens, Greece, in September 1972. A submarine tender began forward basing at La Maddalena, Sardinia, in Italy, in April 1973.

[457] The destroyers had been forward-based in Greece at a time when that country was under military rule. A subsequent return to democracy in Greece brought with it a reaction against many of the decisions of the former military regime, including forward basing of U.S. Navy warships. Consequently, forward-basing Sixth Fleet destroyers in Greece ended in 1975.

[458] Destroyer Squadron 15 was forward based in Japan from the summer of 1972 on. The carrier *Midway* began forward basing in Japan in October 1973.

[459] Intermittent annual or semi-annual Seventh Fleet carrier task force deployments into the Indian Ocean became routinized beginning in the fall of 1973, with the 41-day deployment there of a task force centered on the carrier *Hancock*. In November 1974, a task force centered on the carrier *Constellation* became the only carrier to deploy into the Persian Gulf between 1949 and 1990. On Seventh Fleet deployments into the Indian Ocean in the 1970s, see W. Seth Carus et al., *From MIDEASTFOR to Fifth Fleet: Forward Naval Presence In Southwest Asia*, CRM 95-219 (Alexandria VA: Center for Naval Analyses, October 1996); and Captain James F. Kelly, Jr., "Naval Deployments in the Indian Ocean," Naval Institute *Proceedings/ Naval Review 198,* 109 (May 1983), 174-89.

[460] The British pulled out of their Persian Gulf bases - and responsibilities - in 1971 CHECK. Meanwhile, the Arab-Israeli War of 1973 and the subsequent skyrocketing of world oil prices focused American foreign and defense policy-makers on the Persian Gulf region. Alongside increased U.S. Navy deployments into the Indian Ocean, the nation also stepped up its program of arming the Shah of Iran as the key regional ally. In the wake of the 1973 Yom Kippur War, the U.S. Navy deployed mine-sweeping, explosive ordnance disposal and salvage units into the Suez Canal to re-open that waterway to international - and U.S. Navy - ships.

[461] In 1971, U.S. Navy Construction Battalion Seabees began building a permanent advanced naval base on the British Island of Diego Garcia in the Indian Ocean. In constructing this advanced base ashore, the Seabees were initially supported by a sea base of amphibious warships. .A naval communications station was activated on Diego Garcia in March 1973, replacing an facility at Asmara, Eritrea, Ethiopia, established in 1948 while Eritrea was under British occupation. See Captain Paul B. Ryan (Retired), "Diego Garcia," Naval Institute *Proceedings* 110 (September 1984), 132-6; and Commander Daniel W. Urish, "To Build a Link -- The Seabees at Diego Garcia," Naval Institute *Proceedings* 99 (April 1973), 101-4.

[462] Maturation of the SOSUS system, land-based maritime patrol aircraft, aircraft, sea-based manned helicopters and attack submarines had obviated the need for dedicated anti-submarine warfare carrier task forces and with them, major anti-submarine warfare sea-going commands. See Friedman, *US Naval Weapons*, 103.

[463] WATC deployments were closely coordinated with SOLANT's on-going "Unitas" deployments around South America. See Naval Institute *Proceedings* 105 (May 1979), 50.

[464] This period saw the publication of the first of a spate of books and articles analyzing the peacetime presence and crisis response employment strategy, including its historical roots. See especially Lieutenant Commander Kenneth McGruther, "The Role of Perception in Naval Diplomacy," *Naval War College Review*, 27 (September-October 1974), 3-20; Commander James McNulty, "Naval Presence - The Misunderstood Mission," Naval War College Review, 27 (September-October 1974), 21-31; Edward N. Luttwak, *The Political Uses of Sea Power* (Baltimore MD: Johns Hopkins University Press, 1974); Ken Booth, *Navies and Foreign Policy* (London : Croon Helm, 1977); and Barry M. Blechman and Stephen S. Kaplan, *Force Without War: U.S. Armed Forces as a Political Instrument* (Washington DC: Brookings Institution, 1978).

[465] The increased Soviet naval threat at sea led to calls, especially by U.S. Navy Admiral Stansfield Turner, for an initial pull-back of U.S. Navy forces in the run-up to any war with the Soviets, especially in the Mediterranean. See Admiral Stansfield Turner (Retired), "The Future of the U.S. Navy in the Mediterranean," *Mediterranean Quarterly* 3 (Winter 1992), 35-48. Also, because of this threat, Jan Breemer argues that the "Oceanic" phase of U.S. naval strategy endured through the Cold War. For his argument that the transformation actually did not occur until the end of the Cold War, because of the U.S. Navy's need during that era to achieve sea control in the face of a growing Soviet fleet, see his "The End of Naval Strategy: Revolutionary Change and the Future of American Naval Power." On the perceived increase in the "anti-access" threat in the 1970s, see Captain Howard S. Eldredge, "Nonsuperpower Sea Denial Capability: The Implications for Superpower Navies Engaged in Presence Operations," in *Arms Transfers to the Third World: The Military Buildup in Less Industrial Countries*, eds. Uri Ra'anan, Robert L. Pfaltzgraff, Jr., and Geoffrey Kemp (Boulder CO: Westview Press, 1978), 21-64.

[466] In May 1972, the Navy had deployed six carriers off North Vietnam. Navy combat operations over North Vietnam ended, however, in January 1973. The Navy's in-country command, U.S. Naval Forces Vietnam, was disestablished in March 1973. Two years later, Seventh Fleet and Military Sealift Command forces helped evacuate thousands of South Vietnamese and Cambodians as their cities fell to a final Communist offensive.

[467] Overall and specific ship type force levels all dropped, but there were differences among different ship types. Carrier numbers dropped throughout the Vietnam War and after from a Cold War peak of 26 in 1962 to 17 in 1972 to 13 in 1979. Active amphibious ship numbers dropped from a Vietnam War peak of

162 in 1967 to 67 in 1979. Attack submarines dropped from 105 in 1968 to 80 in 1979. For ship numbers, see Naval Historical Center, *U.S. Active Ship Force Leve*ls. Numbers of aircraft in the Navy Department inventory dropped from 7836 in 1972 to 6390 in 1969. See Grossnick, *United States Naval Aviation*, 449-450. Active duty end strength dropped from 587,000 in 1972 to 523,000 in 1979. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 48.

[468] Navy responsibilities for homeland defense now devolved back onto the staffs of the fleet commanders in chief and the individual naval base commanders. This re-alignment of organizational, procurement and planned employment strategies was also driven by post-Vietnam War cuts in the numbers of Navy flag officers, made concomitantly with the cuts in ships, aircraft and other personnel. The Navy cut 33 flag officer billets in 1973, in the first major reduction in flag officer numbers since 1948. As of the beginning of 1975, four individual type commands - the Cruiser-Destroyer Forces, Amphibious Forces, Service forces, and Mine Forces - in both the Atlantic and Pacific fleets were amalgamated into new consolidated Surface Forces type commands.

[469] Marine Corps end strength dropped, however, from 198,000 in 1972 to 185,000 in 1979. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 48.

[470] On origins and development of Navy-Air Force cooperative efforts of the 1970s and 80s, especially regarding Air Force support in Navy anti-surface warfare, see William S. Hanable, *Case Studies in the Use of Land-Based Aerial Forces in Maritime Operations, 1939-1990* (Washington DC: Air Force History and Museums Program, September 1998); Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1961-1984*, vol. 2 (Maxwell Air Force Base AL: Air University Press, December 1989), 535-9; Colonel Thomas A. Keaney USAF, *Strategic Bombers and Conventional Weapons: Airpower Options* (Washington DC: National Defense University Press, 1984); and Bert H. Cooper, *Maritime Roles for Land-Based Aviation*, Report N. 83-151F (Washington DC: Congressional Research Service, Library of Congress, August 1, 1983).

[471] For a graphic depiction of service budget shares during this period, see the chart "Service Shares," *Air Force Magazine*, 85 (May 2002), 51.

1979-1990 deployment strategy

[472] On the Navy of the 1980s, see John F. Lehman, Jr., *Command of the Seas* (New York: Charles Scribner's Sons, 1988); and Frederick H. Hartmann, *Naval Renaissance: The U.S. Navy In the 1980s* (Annapolis MD: Naval Institute Press, 1990); and Christopher C. Wright's series of "U.S. Naval Operations" articles, Naval Institute *Proceedings*/*Naval Review*, vols. 109-113 (May issues, 1983-1987).

[473] While no carrier had made a round-the-world deployment since *America* in 1966, a half dozen did so during the 1980s, starting with *Carl Vinson* and *Coral Sea* in 1983. Submarine global circumnavigations by now had become quite frequent also. See Grossnick, *Dictionary of American Aviation Squadrons,* vol. 1*,* 521-522; and Wright, "U.S. Naval Operations" articles for 1982-1986.

[474] In 1979, the Carter Administration formally established the Freedom of Navigation program, and it soon became an integral part of American foreign policy and Navy deployment strategy and actual employment strategy. Its most celebrated tests were off Libya in 1986 and in the Black Sea in 1988. See Aceves, "Diplomacy at Sea". See Also Raymond L. Garthoff, *A Journey Through the Cold War: A Memoir of Containment and Coexistence* (Washington DC: Brookings Institution Press, 2001).

[475] The failed joint U.S. military operation to rescue American embassy personnel held hostage in Iran was Operation "Eagle Claw," which unraveled in a series of accidents at a location code-named "Desert One" in the middle of Iran. A feature of the operation was use of the carrier *Nimitz* as a sea base for the rescue helicopters. See Otto Kreisher, "Desert One Disaster," *MHQ* 13 (Autumn 2000), 42-51; and Captain Paul B. Ryan (Retired), *The Iranian Rescue Mission: Why it Failed* (Annapolis MD: Naval Institute Press, 1985).

[476] On the changes in U.S. Navy deployments to the Arabian Sea from the late 1970s to the early 1980s, see Kelly, "Naval Deployments in the Indian Ocean."

[477] A Near-Term Prepositioning Force (NTPF) of seven ships was deployed at Diego Garcia by August 1980, carrying equipment to sustain a 12,000-man Rapid Deployment Joint Task Force (RDJTF), cobbled together in late 1979. The composition and capability of the NTPF would grow to 17 ships by 1983. By November 1985, five of the 17 were relieved by five newly-converted Maritime Prepositioning Ships (MPS). On the creation and deployment of the RDJTF, see Paul Starobin and Robert Leavitt, *Shaping the National Military Command Structure: Command Responsibilities for the Persian Gulf* (Cambridge MA: Harvard University, Kennedy School of Government Case Program, 1985); and Maxwell Orme Johnson, *The Military as an Instrument of National Policy in Southwest Asia: The Rapid Deployment Joint Task Force, 1979-1982* (Boulder CO: Westview Press, 1983). In January 1983, a new joint unified U.S. Central Command replaced the RDJTF, with responsibility for Southwest Asia. At sea, however, it had operational control only over the Middle East Force. Carrier and other Navy operations in the Arabian Sea remained the province of the Pacific and Seventh Fleet commanders. On the shifts in strategy in this area, including deployment strategy, constantly changing organizational strategies, and actual employment strategy during the Tanker War, see Palmer, "The United States, the Gulf, and the Iran-Iraq War, 1981-1988," Part 4 of *On Course to Desert Storm*, 101-137; Hans S. Pawlisch, "Operation Praying Mantis," in Palmer, *On Course to Desert Storm*, 141-6; and Carus, "Revolution and War, 1979-1990," chap. in *From MIDEASTFOR to Fifth Fleet*, 81-115. See also Martin S. Navias and E.R. Hooton, *Tanker Wars: The Assault on Merchant Shipping During the Iran-Iraq Conflict*, 1980-1988 (London: I. B. Tauris, 1996).

[478] Middle East Force destroyers began escorting tankers in the Gulf in 1980. Operations intensified with the escort of re-flagged Kuwaiti tankers beginning in 1987, in Operation "Earnest Will." Numerous incidents ensued, including an Iraqi air attack on the frigate *Stark*, the Iranian mining of the frigate *Samuel B. Roberts*, U.S. Navy attacks on Iranian facilities and ships (Operations "Nimble Archer" and "Praying Mantis"), and the inadvertent shooting down of a civilian Iranian airliner by the Aegis cruiser *Vincennes*. The operation to protect tanker traffic was coordinated with naval forces from seven other nations and from the Western European Union, in an ad hoc coalition at sea.

[479] While aircraft carriers and surface combatants clearly had established a "third hub" in the Indian Ocean by 1979, amphibious ships and submarines continued to deploy to the Indian Ocean through far less than they did to the Mediterranean and Western Pacific. For a comparative analysis of the Navy's actual presence employment strategy for the three hubs during the 1980s, see Richard E. Angel, *U.S. Navy Ship Presence in the Three Major Deployment Hubs, 1976-1994*, CAB 95-120 (Alexandria VA: Center for Naval Analyses, November 1995).

[480] In the U.S. Navy, this shift was encompassed by a new and widely-publicized Navy declaratory strategy - "The Maritime Strategy" - re-emphasizing trans-oceanic global forward deployment and employment of the fleets in the event of war with the Soviet Union. The Navy increasingly aligned its procurement and organizational strategies to support these operations. On the Maritime Strategy, see Admiral James Watkins, "The Maritime Strategy," U.S. Naval Institute *Proceedings* special insert, January 1986) ; Captain Linton F. Brooks, "Naval Power and National Security: The Case for the Maritime Strategy," *International Security* 11 (Fall 1986), 58-87; John B. Hattendorf, "The Evolution of the Maritime Strategy: 1977-1987", *Naval War College Review* 41 (Summer 1988), 7-28; and David A. Rosenberg, "Process: The Realities of Formulating Modern Naval Strategy", in James Goldrick and John B. Hattendorf eds., *Mahan is Not Enough: The Proceedings of a Conference on the Works of Sir Julian Corbett and Admiral Sir Herbert Richmond* (Newport RI: Naval War College Press, 1993), 141-175. For an argument that The Maritime Strategy was the culmination and fulfillment of all U.S. Navy strategy since the end of the Second World War, see David A. Rosenberg, "American Naval Strategy in the Era of the Third World War: An Inquiry into the Structure and Process of General War at Sea, 1945-90," in *Naval Power in the Twentieth Century*, ed. N.A.M. Rodger, 242-254.

[481] To enhance his re-vitalized role as a forward sea-going commander, the Third Fleet commander received a command ship in 1986. He moved his headquarters to San Diego in 1991.

[482] In September 1983, two Pacific Fleet battle groups deployed for an exercise southeast of Kamchatka and the Kuriles. Soviet land-based naval attack aircraft conducted mock attacks on the carriers. In August 1986, a Third Fleet carrier battle group deployed into the Bering Sea, the first carrier deployment there since 1962. In early 1987, the Third Fleet conducted winter amphibious operations in the Aleutians. For the increase in U.S. Navy carrier battle group deployments into the North Pacific, see Adam Siegel et al., *Deployments of U.S. Navy Aircraft Carriers and Other Surface Ships, 1976-1988*, CIM 51, (Alexandria VA: Center for Naval Analyses, July 1989), 21; and Brendan M. Greeley, "Third Fleet Increases North Pacific Operations to Counter Soviet Activity," *Aviation Week & Space Technology* (December 22, 1986), 28-9. For critical commentary on American and Soviet deployment strategies in the North Pacific during the 1980s, see Pauline Kerr, *US & Soviet Naval & Air Operations in the North Pacific, 1981-1989: A Database*, (Canberra, Australia: Peace Research Centre, Research School of Pacific Studies, Australian National University, 1996).; and idem, *Eyeball to Eyeball: US & Soviet Naval & Air Operations In the North Pacific, 1981-1990* (Canberra, Australia: Peace Research Centre, Research School of Pacific Studies, Australian National University, 1991).

[483] A program of extensive and massive northern forward surge exercise deployments began with NATO exercise "Ocean Venture 81" in the fall of 1981, with Second Fleet commander Vice Admiral James A. Lyons, Jr. acting in his role as NATO Striking Fleet Atlantic commander. On the Second Fleet deployment and employment strategies, especially as the principal element of the NATO Striking Fleet Atlantic, see Vice Admiral Henry C. Mustin (Retired), *Oral History*, conducted by David F. Winkler and Bill Peerenboom (Washington DC: Naval Historical Foundation, 2001); Eric Grove, *Battle for the Fiords*: *NATO's Forward Maritime Strategy in Action*, (Annapolis MD: Naval Institute Press, 1991); and Vice Admiral Henry C. Mustin, "The Role of the Navy and the Marines in the Norwegian Sea," *Naval War College Review* 39 (March-April 1986), 2-6. In addition to its forward deployments implementing the Maritime Strategy, the Second Fleet was also employed in the Caribbean in 1983 during the Grenada invasion (Operation "Urgent Fury"). The Second Fleet commander was the joint task force commander for the operation. See Ronald H. Cole, *Operation Urgent Fury: The Planning and Execution of Joint Operations in Grenada, 12 October - 2 November 1983* (Washington DC: Office of the Chairman of the Joint Chiefs of Staff, 1997); Mark Adkin, *Urgent Fury: The Battle for Grenada* (Lexington: D.C. Heath & Company, 1989); Lieutenant Colonel Ronald H. Spector, U.S. Marine Corps Reserve, *U.S. Marines in Grenada, 1983* (Washington DC: History and Museums Division, Headquarters, U.S. Marine Corps, 1987); and Admiral Joseph Metcalf III, "Decision Making and the Grenada Rescue Operation," in *Ambiguity and Command*, eds. March and Weissinger-Baylon.

[484] On FLEXOPS, see Christopher C. Wright, "U.S. Naval Operations in 1983," Naval Institute *Proceedings*/*Naval Review 1984*, vol. 110 (May 1984), 52-67, 285-95; and Lehman, *Command of the Seas*, 390

[485] For example, in a 1985 short-warning readiness exercise, 44 nuclear-powered attack submarines surge-deployed from East Coast bases into the North Atlantic, with full weapons loads. In May 1986, during Exercise "Icex 1-86", three nuclear-powered attack submarines deployed under the Arctic ice to the North Pole, surfacing there together -- the first time this had ever occurred. See Wright, "U.S. Naval Operations in 1985," Naval Institute *Proceedings*/*Naval Review 1986*, vol. 112 (May 1986), 34; and "U.S. Naval Operations in 1986," Naval Institute *Proceedings*/*Naval Review 1987*, vol. 113 (May 1987), 30. See also Sontag and Drew, *Blind Man's Bluff.* On coordinated Royal Navy forward submarine operations, see Ring, *We Come Unseen*, 236-43.

[486] On U.S. Navy crisis operations in the 1980s, see Gaffney et al., *U.S. Naval Responses to Situations*; and Siegel, *The Use of Naval Forces in the Post-War Era*. These naval responses included major deployments - some with allied and friendly navies - off Libya, El Salvador, Lebanon, Grenada, Suez, Honduras, Korea and Liberia. On the operations off Libya (especially Operation "El Dorado Canyon"), see Joseph T. Stanik, *El Dorado Canyon: Reagan's Undeclared War with Qaddafi* (Annapolis MD:

Naval Institute Press, 2002); and idem, *"Swift and Effective Retribution:" The U.S. Sixth Fleet and the Confrontation with Qaddafi* (Washington DC: Department of the Navy, Naval Historical Center, 1996).

[487] For example, on December 22, 1980, the nuclear-powered carrier *Eisenhower* and two nuclear-powered cruisers returned from the Indian Ocean after one of the Navy's longest deployments since World War II. At one point *Eisenhower* had been at sea for 152 consecutive days. Also, in 1983, the newly-re-commissioned battleship *New Jersey* steamed for 76,000 miles in 322 days, deploying off southern California, in the Western Pacific, off Central America, and in the Mediterranean.

[488] On Admiral Watkins's imposed deployment PERSTEMPO restrictions, see Wright, "U.S. Naval Operations in 1986," 30.

[489] The Military Sea Transportation Service (MSTS) had become the Military Sealift Command (MSC) in 1970. The first civilian-manned Military Sealift Command afloat prepositioning ships (the Near-Term Prepositioning Force, or NTPF), carrying prepositioned equipment for the Army and other services, deployed to Diego Garcia in the Indian Ocean in 1980. A Maritime Prepositioning Squadron deployed in 1985 to the Eastern Atlantic. Another deployed to the Western Pacific in 1986. . The Naval Space Command was activated in 1983. The Navy's Underwater Demolition Teams (UDTs) were subsumed into the SEALs in 1983. The Naval Special Warfare Command was activated in 1987. Joint U.S. Space and Special Operations Commands were activated in 1985 and 1987 respectively. Henceforth, U.S. Navy SEAL teams would operated more as components of joint special operations organizations, and less as integral parts of U.S. Navy amphibious warfare forces. On issues relating to SEAL deployments in the 1980s, see Norman Polmar, "SOF -- The Navy's Perspective," Naval Institute *Proceedings* 113 (August 1987), 136-8.

[490] In March 1984, the Secretaries of the Navy and Transportation signed a Memorandum of Agreement (MOA) establishing the Maritime Defense Zones (MARDEZs) as Navy commands and designating the Coast Guard Atlantic and Pacific Area commanders as MARDEZ commanders, reporting to Navy Fleet commanders-in-chief. MARDEZ headquarters were to be staffed by active duty Navy and Coast Guard personnel, augmented by reservists from each service. MARDEZs were responsible for deploying forces for harbor and coastal defense, including port breakouts, mine countermeasures, and inshore undersea warfare. MARDEZLANT stood up in 1985. MARDEZPAC stood up in 1986. See Karen D. Smith and Nancy F. Nugent, *The Role of the Maritime Defense Zone in the 21st Century*, CAB D0002525.A1/Final (Alexandria Virginia: Center for Naval Analyses, September 2000), 15-6; and Vice Admiral John D. Costello, USCG, and Lieutenant Commander D. N. Wood, USCG, "Guarding the Coast," Naval Institute *Proceedings* 111 (August 1985), 66-71.

[491] In 1985, the Commander, Mine Warfare Command initiated the Craft of Opportunity (COOP) Program, employing Naval Reservists on Naval Academy yard patrol craft and requisitioned commercial fishing boats for limited offshore and harbor mine hunting and sweeping. The first COOP craft was a "Minesweeping Shrimp Boat", a converted captured drug smuggler, placed in service in 1985. The program died within a decade, with the end of the Cold War.

[492] From 1986 on, Navy counter-drug deployments increased markedly. The Anti-Drug Abuse Act of 1986 tasked the Defense Department to provide resources and assistance to help stem the inflow of drugs into the United States. Increased Navy funding of E-2C AEW aircraft was specifically mandated, as was the assignment of Coast Guardsmen to Navy surface ships at sea with the power to make arrests. Navy ships and aircraft accelerated counter-drug deployments in the Caribbean, the Gulf of Mexico, and off the Pacific Coast. On the counter-drug war in the Caribbean and off California in the 1980s, see Commander Naval Reserve Force Public Affairs Office, "Naval Reserve Force Plays Key Role in Counter-Drug operations," *NRA News* (February 2002), 9-11; Armistead, *AWACS and Hawkeyes*, 97-101; Charles M. Fuss, Jr., *Sea of Grass; The Maritime Drug War, 1970-1990* (Annapolis MD: Naval Institute Press, 1996); Commander Will Dossel, "Sunset for the Steeljaws: The History of VAW-122," *The Hook* 24 (Summer 1996), 31; and Major Peter M. Sanchez USAF, "The 'Drug War': The U.S. Military and National Security," *Air Force Law Review*, 34 (1991), 109-52.

[493] The forward tenders left Rota, Spain in 1979 and Holy Loch, Scotland in 1992.

[494] There is a large literature on the Goldwater-Nichols Act and its effects. See especially James R. Locher, III, *Victory on the Potomac: The Goldwater-Nichols Act Unifies the Pentagon* (College Station TX: Texas A&M University Press, 2002); idem "Has it Worked? The Goldwater-Nichols Reorganization Act," *Naval War College Review* 54 (Autumn 2001), 95-115; Gordon Nathaniel Lederman, *Reorganizing the Joint Chiefs of Staff: The Goldwater-Nichols Act of 1986* (Westport CT: Greenwood Press, 1999); and Dennis J. Quinn, ed., *The Goldwater-Nichols DOD Reorganization Act: A Ten-Year Retrospection* (Washington DC: National Defense University Press, 1999).

[495] The Navy - especially Secretary of the Navy John F. Lehman, Jr. - led the Defense Department in opposing passage of the Goldwater-Nichols Act. The conventional Navy view of the time was exemplified by Rear Admiral J. C. Wylie (Retired) in his "Heads Up, Navy", Naval Institute *Proceedings/ Naval Review 1991* 117 (May 1991), 17-18. For some rejoinders by a younger generation of naval planners, see the comments by Lieutenant Commander Sam J. Tangredi and Commander Donald P. Loren in "Comment and Discussion", Naval Institute *Proceedings* 117 (July 1991), 14-16; and Naval Institute *Proceedings* 117 (August 1991), 18-19. For Lehman's regrets, a decade and a half later, at his failed efforts to block passage of the Act, see "An Interview with John Lehman: 'Captivated by the American Spirit," *Naval History* 16 (February 2002), 24-5.

[496] The CNO, however, also lost some of his control over Navy procurement strategy at this time. In 1985, Secretary of the Navy John Lehman abolished the Naval Material Command, which had been created in 1966, and ordered the systems commands report to him for procurement matters, and to the CNO only for or logistics and fleet support. In 1986, the Goldwater-Nichols Act gave the Secretary -like all service secretaries - sole responsibility for procurement.

[497] The carrier force rose from 12 in 1981 to a brief peak of 15 in 1991. The submarine force rose from 74 in 1976 to 102 in 1987 before starting to decline. The 600-Ship Navy procurement strategy temporarily brought Navy active ship numbers to about where they had been in the early 1970s. Naval Historical Center, *U.S. Active Ship Force Leve*ls. The number of aircraft in the Navy Department inventory, however, declined during the decade of the 1980s, from 6390 in 1979 to 5895 in 1990. See Grossnick, *United States Naval Aviation*, 450. Navy active duty end strength rose from 523,000 in 1979 to 592,000 in 1989, dropping to 579,000 by 1990. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 48-9.

[498] In 1985 a Marine was appointed for the first time as a unified commander. In 1987 the Marine Corps began to re-focus away from the operations on the Soviet flanks that were central to the Maritime Strategy and toward expeditionary deployments to the Third World areas. In 1988 the Marines re-styled their combat organizations as "expeditionary", rather than "amphibious". Marine Corps end-strength rose during the 1980s, from 185,000 in 1979 to just shy of 200,000 in 1987. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47-8.

[499] On the continued Navy-Air Force cooperation regarding the war at sea during the 1980s, see L. Edgar Prina, "The Tripartite Ocean: The Air Force and Coast Guard Give the Navy a Helping Hand," *Seapower* 29 (October 1986), 32-45; Donald D. Chipman and Major David Lay, "Sea Power and the B-52 Stratofortress," *Air University Review* 37 (January-February 1986), 45-50; Lieutenant Colonel Thomas L. Wilkerson USMC, "Two If By Sea," Naval Institute *Proceedings* 109 (November 1983), 34-9; During the 1980s, Air Force active duty officer and enlisted end strength more or less approximated that of the Navy, a major change from the previous three decades, when it had usually been far greater. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 47-8.

[500] On the changes in Coast Guard views during the 1980s regarding deploying with the Navy, see Captain Bruce Stubbs, USCG (Retired), "Whipsawing the Service," Naval Institute *Proceedings* 128 (April 2002), 52-3; and Commander Robert L. Desh, USCG, letter in Naval Institute *Proceedings* 128 (June 2002), 20.

[501] "When Ronald Reagan was elected President in 1980, the position of the U.S. merchant marine engaged in international trade had slipped back to the level it had been at before World War I. Ships flying the Stars and Stripes were carrying less than 5 percent of the nation's foreign commerce. America's

overseas trade was booming, and President Reagan was committed to making sure that the United States had the world's leading navy, but commercially the nation had ceased to be a maritime power of any consequence." See Gibson and Donovan, *Abandoned Ocean*, 207.

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[502] Powerful naval forces continued to deploy forward as numbered fleets to the Mediterranean and the Indian Ocean on a continuous or near-continuous basis, and to be forward based in the western Pacific. On the status of Seventh Fleet forward basing in Japan as of 1997, see Commander Paul S. Giarra, U.S. Navy (Retired), "Host Nation Support, Responsibility Sharing, and Alternative Approaches to U.S. Bases In Japan," *Naval War College Review*, 50 (Autumn 1997), 53. Three modest changes in forward basing did occur in the 1990s: In 1993 the Middle East Force command ship - had been forward based in the Persian Gulf since 1949 - replaced by a shore facility at Bahrain; in 1996 two mine warfare ships began to be forward based in Sasebo, Japan; and in 2000 four mine warfare ships began to be forward based in Bahrain. A more significant move forward was announced in 2001: Three submarines based in the United States will be shifted forward to homeports in Guam starting in 2002. On the mine warfare ships, see Norman Polmar, *The Naval Institute Guide to the Ships and Aircraft of the U.S. Fleet*, 17th edn. (Annapolis MD: Naval Institute Press, 2001), 222-4. On the submarine moves to Guam, see Ensign Brian E. Ray, "Home Porting Subs Overseas Makes Sense," Naval Institute *Proceedings* 128 (July 2002), 82-4.

[503] To characterize operations during this decade as conforming to a three-hub deployment strategy is to simplify greatly, if necessarily. The decade saw a decline in U.S. Navy force levels, unpredictability of crisis and combat locations, and continued inherent flexibility, mobility and sustainability of U.S. naval warships. Maintenance of rigorous schedules and clear distinctions among hub deployments was often an ideal, not a reflection of actual fact, as U.S. naval forces were periodically directed to swing from one hub to another. Carrier battle groups moved, for example, in 1994 from the Mediterranean to the Gulf in response to a massing of Iraqi troops on the Kuwaiti border; in 1995 from the Gulf to the Mediterranean to cover NATO movements into Bosnia; in 1996 from the Indian Ocean to the Pacific to monitor Chinese missile tests; in 1999 from the Indian Ocean to the Mediterranean to support NATO pressure on Serbia; and in 2000 from the Gulf to the Mediterranean during Serbian elections.

[504] As a consequence of the dissolution of the Warsaw Pact, President George H.W. Bush announced in 1991 that all non-strategic theater nuclear weapons would be removed from U.S. Navy surface ships and attack submarines. Note that, while Samuel Huntington dated the commencement of the "trans-oceanic" era in U.S. naval strategy from the end of World War II, naval analyst Jan Breemer would date it from this period, as he saw defeating the Soviet Navy as the primary focus of the U.S. Navy during the Cold War. See his ""The End of Naval Strategy."

[505] The last big Norwegian Sea "Maritime Strategy" surge exercise had been in the fall of 1988. This was "Teamwork 88", deploying much of the U.S. Second Fleet and naval forces from seven countries. See Eric Grove, *Battle for the Fiords.* (The Second Fleet continued to exercise annually with NATO allies in the Eastern Atlantic and the Baltic, but using less threatening scenarios). The last big Northwest Pacific surge exercise had been in the fall of 1989. This was "PACEX 89", deploying more than 100 Pacific Fleet warships, including three carriers, two battleships, and three amphibious groups. See John F. Morton, "The U.S. Navy in 1989," Naval Institute *Proceedings/ Naval Review 1990* 116 (May 1990), 174; Rear Admiral Michael C. Colley, "Force Commanders Forum: Commander Submarine Force, U.S. Pacific Fleet," *Submarine Review* (October 1990), 88-90; Lieutenant Commander Norris James, "Supply and Demand: New Logistics Concepts Tested During PacEx," *All Hands* (May 1990), 38-39; and Vice Admiral John H. Fetterman, "PACEX 89," *Wings of Gold* 14 (Winter 1989), 26-7. Likewise, the Sixth Fleet no longer had to deploy to exercise its Striking and Support Force missions against Warsaw Pact

targets for the Commander-in-Chief of NATO's Allied Forces Southern Europe (another responsibility of CINCUSNAVEUR). It did, however, have to deploy in and near the Adriatic to conduct operations incident to the break-up of the Federal Republic of Yugoslavia, including Operations "Deny Flight," "Sharp Guard," "Provide Promise," "Joint Guard," and Deliberate Guard," in 1993; "Deliberate Force," and "Joint Endeavor," in 1995; "Silver Wake," in 1997; "Determined Falcon," in 1998," and "Allied Force," and "Joint Guardian," in 1999. On "Deliberate Force," see David L. Dittmer and Stephen P. Dawkins, *Deliberate Force: NATO's First Extended Air Operation: The View from AFSOUTH*, Occasional Paper (Alexandria VA: Center for Naval Analyses, June 1998).

[506] The Second Fleet deployed off Haiti in 1993 and 1994 in joint Operations "Support Democracy", "Restore Democracy," "Uphold Democracy" and "Maintain Democracy." On Haiti, see John R. Ballard, *Upholding Democracy: The United States Military Campaign in Haiti, 1994-1997* (Westport CT: Praeger, 1998); *U.S. Atlantic Command: Operation Uphold Democracy: Joint After Action Report* (Norfolk VA: U.S. Atlantic Command, 1996); E. McGrady and K. Smith, *Haiti and the Future of Warfare*, CRM 96-126, (Alexandria VA: Center for Naval Analyses, August 1996); Adam B. Siegel, *The Intervasion of Haiti*, Professional Paper 539 (Alexandria VA: Center for Naval Analyses, August 1996); and Rear Admiral Thomas R. Wilson, "Joint Intelligence and Uphold Democracy", *Joint Force Quarterly*, no. 7 (Spring 1995), 54-59.

[507] In 1997, Vice Admiral Richard Mies, Commander, U.S. Submarine Force Atlantic, was quoted as declaring during a press interview: "One of the things we're not going to do anywhere near as much as we have done in the past are Arctic operations." See "U. S. is Phasing Out Attack Sub Patrols Under Arctic Ice," *Baltimore Sun* (November 16, 1997), 20.

[508] In November 1992, *Topeka* became the first U.S. nuclear attack submarine to deploy inside the Gulf. She was followed by others conducting routine deployments. NAVCENT forces also deployed as part of joint operations in and off Somalia in 1991, 1993 and 1995. See Adam B. Siegel, "An American Entebbe," Naval Institute *Proceedings/ Naval Review 1992* 118 (May 1992), 96-102. Following Operation "Desert Storm", the Seventh Fleet conducted a disaster relief operation in Bangladesh - Operation "Sea Angel" - in the wake of the devastation caused by Tropical Cyclone Marian. See Charles R. Smith, *Angels from the Sea: Relief Operations in Bangladesh, 1991* (Washington DC: History and Museums Division, Headquarters U.S. Marine Corps, 1995). Anti-Iraqi operations involving U.S. naval forces that followed Iraq's 1990 invasion of Kuwait included "Desert Shield," "Desert Storm," "Northern Watch," "Southern Watch," "Vigilant Warrior," "Vigilant Sentinel", "Desert Strike", and "Desert Fox." For an annotated listing of all significant U.S. Navy operations during the 1990s, see "Navy-Marine Corps Crisis Response and Combat Actions," in *Vision . . . Presence . . .Power*, 177-180. For an analysis of these operations, see Gaffney et al., *U.S. Naval Responses to Situations, 1970-1999.* On the Navy in the 1990-91 Gulf War, see Edward J. Marolda and Robert J. Schneller, *Shield and Sword: The United States Navy and the Persian Gulf War* (Washington DC: Naval Historical Center, 1999); and Marvin Pokrant, *Desert Shield at Sea: What the Navy Really Did* and *Desert Storm at Sea; What the Navy Really Did* (Westport CT: Greenwood Press, 1999

[509] The 1989 Defense Authorization Act brought the Defense Department more heavily into the war on drugs by designating it the lead agency for "detection and monitoring" of sea and air traffic bringing illegal drugs into the United States. Accordingly, Navy ship and aircraft counter-drug deployments increased. In 1989, Joint Task Force Four (JTF 4) was established to coordinate the conduct of detection and monitoring operations against aircraft and vessels engaged in suspected drug smuggling in the Gulf of Mexico and the Caribbean Sea. (JTF-4 became Joint Inter-Agency Task Force East (JIATF-East) in 1994). The initial JTF-4 commander was a Coast Guard vice admiral, succeeded by a series of Navy rear admirals. On the counter-drug war in the Caribbean and off California in the 1990s, see Commander Naval Reserve Force Public Affairs Office, "Naval Reserve Force Plays Key Role in Counter-Drug operations," 9-11; Armistead, *AWACS and Hawkeyes*, 97-101; and Sanchez, "The 'Drug War': The U.S. Military and National Security," 109-52.

[510] On the MARDEZes, see Smith and Nugent, *Role of the Maritime Defense Zone in the 21st Century*, 17-24.
[511] By 1999, only California, Illinois and New York still maintained state naval militias. In that year, however, New Jersey reactivated its naval militia, which it had disbanded in 1963. See Captain Wayne E. Girardet, "A Naval National Guard?" *Shipmate* 65 (March 2002), 24.
[512] On combat-credible forward presence requirements as the principal U.S. Navy force-sizing criterion of the era, see Rear Admiral Philip A. Dur, "Presence: Forward, Ready, Engaged," Naval Institute *Proceedings* 120 (June 1994), 41-44. See also Captain Linton F. Brooks (Retired), Peacetime Influence Through *Forward Naval Presence* (Alexandria, Virginia: Center for Naval Analyses, October 1993), in which one of the major architects of The Maritime Strategy of the 1980s turned his attention to forward deployment strategy in the 1990s.
[513] The progression of Navy declaratory strategy documents in the 1990s was: H. Lawrence Garrett, Admiral Frank B. Kelso II, and General A. M. Gray, "The Way Ahead", Naval Institute *Proceedings* 117 (April 1991); Sean O'Keefe, Admiral Frank B. Kelso, II, and General Carl E. Mundy Jr., " . . . From the Sea", Naval Institute *Proceedings* 118 (November 1992), 93-96; John H. Dalton, Admiral J. M. Boorda, and General Carl E. Mundy Jr., "Forward . . . From the Sea", (Washington DC: U.S. Department of the Navy, 1994); and "Forward . . . From the Sea: The Navy Operational Concept" (Washington DC: Office of the Chief of Naval Operations, March 1997); "The Maritime Concept", chap. in *Navy Strategic Planning Guidance* (NSPG) (Washington DC: Office of the Chief of Naval Operations, April 2000), 18-28; "A 21st Century Navy" (CD-ROM) (Washington DC: Office of the Chief of Naval Operations, OPNAV N8-QDR, February 2002); and England, Clark and Jones, *Naval Transformation Roadmap*. "The Way Ahead" posited an increase in surge deployments and changes in forward presence hubs, but neither the document nor its strategy long survived.
[514] For Southwest Asian waters, in 1992 a vice admiral took over command of Naval Forces Central Command (NAVCENT) from a rear admiral, and in 1995 the command was double-hatted as a revived Fifth Fleet - a new forward deployed numbered fleet. The steps leading up to creation of the Fifth Fleet were numerous and tortuous. For Latin American waters, a Western Hemisphere Group (WESTHEMGRU) of 16 surface combatants was created in 1995, in part to stabilize deployments in support of the Drug War in the Caribbean. WESTHEMGRU (and COMSOLANT) were superseded in 2000 by a Naval Forces Southern Command (NAVSO), with responsibility for the Drug War and "Unitas" operations. While "Unitas" operations continued, by 2001 they had evolved into three separate phases conducted in the Caribbean, South Atlantic, and Pacifc off South america. With the exception of bi-lateral amphibious operations, the deployment had ceased to be a circumnavigation.. On Southwest Asia, see Carus et al., *From MIDEASTFOR to Fifth Fleet.* On WESTHEMGRU and NAVSO, see Smith et al., *Is NAVSO Organized and Staffed to Do Its Job?* 68-79. On "Unitas", see website http://www02.clf.navy.mil/usnavso/exer.htm
[515] As noted earlier, for maximum consistency when making historical comparisons, this paper takes its force level numbers from Naval Historical Center, *U.S. Navy Active Ship Force Levels.* The compilers of these numbers include active commissioned ships, those in the Naval Reserve Force (NRF) and fleet support ships operated by the Military Sealift Command (MSC).
[516] Meanwhile, the U.S. Navy's amphibious ship force dropped from 61 in 1989 to 39 in 2001. Also, the tender force for sea-based repair was cut way back in the 1990s, down from nine destroyer tenders and eleven submarine tenders in commission in 1990 to only two submarine tenders in 2000 - both forward based (in Sardinia and Guam). The reduction was driven by their limited and obsolescing repair capabilities, heavy manpower requirements, and large number of alternative shore-based repair facilities, both forward and at home. See Polmar, *Ships and Aircraft of the U.S. Fleet*, 230-233 & 269-271; and *Vice Admiral Henry C. Mustin (Retired): Oral History*, (Washington DC: Naval Historical Foundation, 2001) 128-9.
[517] On the increasing capabilities of the fleet during the 1990s, despite the drop in ship numbers, see Work, *Challenge of Maritime Transformation.*

[518] See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46-8.
[519] During the 1990s and into the twenty-first century, the relative strengths of the services became remarkably stable vis-à-vis each other (the so-called "1/3 - 1/3 - 1/3 principle"). The Navy Department received the largest departmental share of each annual defense budget, followed by the Departments of the Air Force and the Army, but the percentage of the total in each share scarcely varied throughout the decade. Likewise, the Army consistently had the highest end strength of the services during the 1990s and beyond, with Navy and Air Force end strengths about the same, but the end-strength ratios of the three services stayed about the same, despite the overall draw down in the 1990s of servicemen and women. Marine Corps end strength stayed almost level, however, throughout the entire period, despite the heavy cuts in the other services. Thus the Marine Corps share of total active duty military personnel rose considerably by 2000. (In 1960 the active Marine Corps had been about a fifth the size of the active Army or the active Air Force and a quarter the size of the Navy. By 2000 the Marines had become about a third the size of the Army and half the size of the Navy or the Air Force). For a graphic depiction of the stability of service budget shares in the 1990s and beyond, see "Service Shares", *Air Force Magazine*, 85 (May 2002), 51. For a graphic depiction of comparative service personnel levels, see "DoD Active Duty Military Personnel Strength Levels: Fiscal Years 1950-2000," on line at the Department of Defense, Directorate for Information Operations and Reports (DIOR) website: http://web1.whs.osd.mil/mmid/military/miltop.htm
[520] As an example: *The Maritime Strategy* of 1986 had been promulgated through three separate (albeit coordinated) documents signed by the Chief of Naval Operations (in the lead), the Commandant of the Marine Corps, and the Secretary of the Navy respectively. *The Way Ahead*, . . . *From the S*ea and . . . *Forward From the Sea* were each integrated unitary documents, approved and signed at the bottom by all three officials.
[521] On the Base Force, see Lorna S. Jaffe, *The Development of the Base Force, 1989-1992* (Washington DC: Office of the Chairman of the Joint Chiefs of Staff, Joint History Office, July 1993). On the Navy's procurement strategy in the mid-1990s, see Owens, "Force 2001," chap. in *High Seas*, 138-59.
[522] The Global Naval Force Presence Policy (GNFPP) allocates carrier battle groups and other forces among the joint unified Combatant Commanders, absent crisis or war contingency requirements. The GNFPP is initially drafted by the staff of the Chief of Naval Operations, then subjected to review by the combatant command staffs and the Joint Staff, and finally promulgated, as revised, by the Chairman of the Joint Chiefs of Staff. A GNFPP was first promulgated in 1991, and a subsequent edition remained in force as of 2002.
[523] NAVCENT, as naval component of the U.S. Central Command, took over the entire Arabian Sea in 1996. The U.S. Southern Command likewise took over vast ocean areas that same year
[523] The largely maritime joint Atlantic Command was transformed into Joint Forces Command - losing water areas but gaining new missions as a joint force integrator. On the changes in the Atlantic Command, see William McClintock, *Establishment of United States Atlantic Command, 1 October 1993* (Norfolk VA: Headquarters, Commander in Chief, U.S. Atlantic Command, 1996); Admiral Harold W. Gehman, Jr, *End of Tour Oral History Interviews*, conducted by William R. McClintock (Norfolk VA: Headquarters, Commander in Chief, U.S. Joint Forces Command, April 2001); and Admiral Harold W. Gehman, "Progress Report on Joint Experimentation," *Joint Force Quarterly* (Summer 2000), 77-82.
[524] On the standing up of the U.S. Strategic Command, see Vice Admiral Roger F. Bacon, "Seizing the Strategic Baton", Naval Institute *Proceedings/ Naval Review* 118 (May 1992), 73-4.
[525] In May 1996, the Sixth Fleet participated in the first NATO combined/joint task force (CJTF) afloat exercise in the Mediterranean, Exercise "Matador 96". By March 2002, NATO's Striking Fleet Atlantic - with the U.S. Second Fleet at its core and with its headquarters on board the Second Fleet command ship - expected to achieve Interim Operating Capability (IOC) as a CJTF Headquarters within months - the first NATO CJTF Headquarters command to do so. On early post-Cold War thinking regarding the CJTF concept, see Admiral Paul David Miller, *Retaining Alliance Relevancy: NATO and the Combined Joint Task Force Concept* (Cambridge MA: Institute for Foreign Policy Analysis, 1994), 50-56. On the

concept as of 2002, see "Commander, Striking Fleet Atlantic Briefs NATO's Military Committee; Highlights Combined Joint Task force Concept," U.S. Second Fleet website: http://www.secondfleet.navy.mil/press%20release%20CSFL%20speaks%20%to%20MC.htm

[526] The Marines had just deployed nearly 94,000 men and women to the Gulf War -- more than they had deployed on either Iwo Jima or Okinawa during World War II -- as part of the Navy component as well as constituting a separate Marine component under USCINCCENT. Both the 1st and 2d Marine Divisions deployed to the Gulf, with most of the 3d remaining on Okinawa while also providing elements to the fray. See Otto Kreisher, "Marines' Minefield Assault", *MHQ,* 14 (Summer 2002), 9; Lieutenant Colonel Ronald J. Brown. USMCR (Ret), *U.S. Marines in the Persian Gulf, 1990-1991: With Marine Forces Afloat in Desert Shield and Desert Storm*, (Washington DC: Marine Corps History and Museums Divison,1998); Lieutenant Colonel Charles H. Cureton, USMCR *U.S. Marines in the Persian Gulf, 1990-1991: With the 1st Marine Division in Desert Shield and Desert Storm*, (Washington DC: Marine Corps History and Museums Divison,1993); Lieutenant Colonel Dennis P. Mroczkowski, USMCR *U.S. Marines in the Persian Gulf, 1990-1991: With the 2d Marine Division in Desert Shield and Desert Storm*, (Washington DC: Marine Corps History and Museums Divison, 1993); and Colonel Charles J. Quilter II, USMCR *U.S. Marines in the Persian Gulf, 1990-1991: With the I Marine Expeditionary Force in Desert Shield and Desert Storm*, (Washington DC: Marine Corps History and Museums Division, 1993). For background on the origins of Marine Corps service componency, see Lieutenant General Jefferson Davis Howell USMC and Lieutenant Colonel Kerry K. Gershaneck USMC (Retired), "Componency: The Path to Operational Success," *Marine Corps Gazette* 81 (February 1997), 64-70. During the 1990s, it became normal for a Marine Corps officer to head up one - or two- of the nine unified combatant commands: Marines headed USCENTCOM from 1991 through 1994; USACOM from 1994 through 1997; and both USSOUTHCOM and USCENTCOM from 1997 through 2001. In two other firsts, four-star Marine Corps generals were appointed to the positions of Deputy Commander-in-Chief of the U.S. European Command in 2000, and Vice Chairman of the Joint Chiefs of Staff in 2001.

[527] There is a large literature on joint task forces. See especially Admiral Joseph W. Preuher, "Warfighting CINCs In a New Era," *Joint Force Quarterly*, no. 13 (Autumn 1996), 48-49; Rear Admiral Jay B. Yakely and Major Harold E. Bullock, "Training the Pacific Warriors," *Joint Force Quarterly,* no. 12 (Summer 1996), 16-18; Maureen Wigge and John Ivancovich, *Options for Organizing a Joint Task Force*, CRM 96-35 (Alexandria VA: Center for Naval Analyses, May 1996); and George Stewart, Scott M. Fabbri, and Adam Siegel, *JTF Operations Since 1983*, CRM 94-42 (Alexandria VA: Center for Naval Analyses, July 1994).

[528] In Operations Desert Shield and Desert Storm in 1990-1991, multinational maritime operations were conducted to protect Saudi Arabia and other Gulf states, enforce the UN embargo of Iraq, liberate Kuwait, and clear the Gulf sea lanes of mines and other threats. Non-U.S. naval forces deployed as part of every major operation, and by mid-January 1991 constituted one-third of the coalition's blue-water contingent. In addition to the Gulf Cooperation Council (GCC) states, ultimately 13 nations provided ships to the Maritime Interception Force (MIF). All told, U.S. Navy warships were supplemented by at least 65 coalition warships. See Edward J. Marolda, "A Host of Nations: Coalition Naval Operations in the Persian Gulf", in *Selected Papers* ed. Bittner; and Commander J. C. Neves, Argentine Navy, "Interoperability in Multinational Coalitions: Lessons from the Persian Gulf War," *Naval War College Review*, 48 (Winter 1995), 50-62; and "Multinational Naval Operations: The Canadian Navy in the Persian Gulf: 1990-91," *Canadian Defense Quarterly* (August 1992); and Commodore D. E. Miller, Canadian Forces, and S. Hobson, *The Persian Excursion: The Canadian Navy in the Gulf War*, Clementsport NS: Canadian Peacekeeping Press, 1995). During and after the Gulf War - and continuing through 2002 - naval forces from the United States and 15 other nations deployed in the Gulf, the Red Sea, and North Arabian Sea to enforce United Nations sanctions against Iraq, boarding more than 10,000 ships between 1990 and 1995. In 1990, off Liberia, U.S. Navy - Marine Corps amphibious elements deployed off Liberia to evacuate noncombatants. They were assisted by a Royal Navy frigate and tanker under U.S. Navy tactical control, and by a Nigerian task group. Beginning in 1991 and all through the

1990s, a large number of United Nations, NATO, Western European Union, ad hoc coalition and single-nation operations occurred in and near the Adriatic sea as part of the military actions associated with the break-up of Yugoslavia. From 1992 through 1995, U.S. Marines and soldiers, supported by U.S. Navy warships, in conjunction with France, Italy, and several other nations, deployed in Operation Restore Hope, UNISOM and Operation United Shield, providing relief from the famine in Somalia, attempting to rebuild the nation, and then extracting United Nations forces. The operations off Haiti in the mid-1990s likewise included multinational maritime forces, with substantial Canadian, Latin American, Caribbean, and European deployments. And in 1992, a Standing Naval Force Mediterranean (STANAVFORMED) joined STANAVFORLANT as permanent NATO multi-national formations at sea. Since its inception, the U.S. Navy normally assigned a ship to participate in STANAVFORMED. (STANAVFORMED gave permanency to what had been the NATO On-Call Force, Mediterranean - NAVOCFORMED - established in 1969).

9/11/2001 deployment strategy

[529] 42 active duty Navy men and women died in the 11 September attacks. Included in those killed were several officers, enlisted, and civilian personnel assigned to the Office of the Chief of Naval Operations (OPNAV), especially the Strategic Concepts Branch (N513) and the Navy Command Center (NCC). The head of the Strategic Concepts Branch, Commander Robert Dolan, was among the dead.

[530] On the immediate U.S. Navy response to the attacks of 11 September, 2001, as directed by joint and Navy component commanders, see Scott C. Truver, "The U.S. Navy in Review," Naval Institute *Proceedings/ Naval Review* 128 (May 2002), 79-82.

[531] On the immediate deployment of major U.S. Navy forces off-shore, see Admiral Robert Natter, "The Fleet is Ready," and Admiral Thomas Fargo, "Ready for the Campaign Ahead," Naval Institute *Proceedings* 127 (November 2001), 36-8. Admiral Natter deployed U.S. Navy forces as the Commander in Chief of the U.S. Atlantic Fleet, the Navy component of the U.S. Joint Forces Command. Admiral Fargo was the commander in Chief of the U.S. Pacific Fleet, the Navy component of the joint U.S. Pacific Command.

[532] Two carrier battle groups - the *Enterprise* and *Carl Vinson* battle groups - were already forward deployed in the Indian Ocean when the attacks on America occurred. A third carrier - *Kitty Hawk* - deployed to the Indian Ocean later (see below), as did a fourth, *Theodore Roosevelt*. Two Amphibious Ready Groups (ARGs) were on station in time to send Marines into battle ashore in Afghanistan by the end of November 2002.

[533] On *Kitty Hawk*'s employment as an Afloat Forward Staging Base (AFSB), see William H. McMichael, "Secret and Silent No More: Now on New Mission, Kitty Hawk Officers Talk About War Role," *Navy Times*, May 27, 2002).

[534] On the naval air defense of Crawford, Texas, see LCDR Sean "Mousse" Clark, "Hunters on Guard," *The Hook* 29 (Winter 2001), 55.

[535] On the homeland defense deployments of Navy E-2C airborne early warning and control aircraft, see Lieutenant (junior grade) Blair Greenlaw, "Sun Kings Assist in Homeland Defense," *The Hook* 30 (Spring 2002), 45-50

[536] On the immediate U.S. Marine Corps response to the attacks of 11 September, 2001, as directed by joint and Marine Corps component commanders, see Lieutenant Colonel Frank G. Hoffman, U.S. Marine Corps Reserve, "The U.S. Marine Corps in Review," Naval Institute *Proceedings/ Naval Review 2002* 128 (May 2002), 84-85.

[537] On pre-9-11 planning for employing the MARDEZes, see Smith and Nugent, *Role of the Maritime Defense Zone in the 21st Century.*

[538] On the Navy's offer of assistance to the Coast Guard, despite previous arrangements that Coast Guard forces would work for Navy commanders in time of war, see remarks by Admiral Vern Clark, Chief of Naval Operations, at "Meeting the Homeland Defense Challenge: Maritime and Other Critical Dimensions," conference sponsored by the Institute for Foreign Policy Analysis and the Fletcher School of Law and Diplomacy, Cambridge MA: March 26, 2002.
[539] On the immediate U.S. Coast Guard response to the attacks of 11 September, 2001, see Vice Admiral Howard B. Thorsen, USCG (Retired), "The Coast Guard in Review", Naval Institute *Proceedings/ Naval Review* 128 (May 2002), 93-4; and Joe Conroy, "Coast Guard Answers 9/11 Call," Naval Institute *Proceedings* 127 (November 2001), 39-40.
[540] On U.S. Navy intelligence support to the Coast Guard, see "ONI Awarded Coast Guard Meritorious Unit Commendation," *Naval Intelligence Professionals Quarterly* 18 (Winter 2002), 6.

2002 deployment strategy

[541] The most comprehensive survey of the U.S. Navy at the beginning of the twenty-first century is an unofficial publication, Polmar, *Ships and Aircraft of the U.S. Fleet*, 17th edn. (2001). The best survey of current and planned programs to support and improve the Navy in the future is the official Navy program guide *Vision, Presence, Power* (2002).
[542] For personnel figures, see *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 48. For consistency with previous ship numbers, the ship count figure used in the text is taken from the Naval Historical Center's official *U.S. Navy Active Ship Force Levels.* There are other official ways to count U.S. Navy warships, however: The Navy normally publicizes a figure of 315 Battle Force ships, plus 38 prepositioning ships and 102 surge sealift ships. See for example *Highlights of the Department of the Navy FY 2003 Budget* (Washington DC: Department of the Navy, 2002), 2-3 & 2-4. The official *Naval Vessel Register* for 2002 shows 307 Ship Battle Forces and 150 Local Defense and Miscellaneous Support Forces. The *Naval Vessel Register* is on-line at http://www.nvr.navy.mil/nvrships
[543] The Second Fleet's Northern Europe deployment in 2002 was to spearhead NATO Exercise "Strong Resolve 2002" in the Baltic Sea, alongside participants from 25 other nations. See"NATO Exercise Strong Resolve 2002 a Success", U.S. Second Fleet website (http://www.secondfleet.navy.mil/press_release_Strong_Resolve_endex.htm)
[544] The U.S. Navy's official *Naval Vessel Register* in 2002 showed 11 Seventh Fleet ships homeported in Yokosuka, Japan, including the fleet command ship, a carrier, and nine surface combatants. Seven ships were shown homeported in Sasebo, Japan, including four amphibious ships, two mine warfare ships and a salvage ship. By contrast, only two Fifth Fleet ships - two mine warfare ships - were homeported in the Persian Gulf in 2002; and only two Sixth Fleet ships - the command ship and a submarine tender - were homeported in the Mediterranean.
[545] While four carrier battle groups had deployed in the Arabian Sea for Operation "Enduring Freedom" in the fall of 2001, by April 2002, only one was needed there. *Theodore Roosevelt* had spent 160 consecutive days at sea without a port visit, between September 2001 and February 2002 - the longest any U.S. Navy ship had ever been to sea without pulling into a port, according to the Navy. See Steve Vogel, "Military Matters: USS Theodore Roosevelt Sets a Record," *Washington Post*, March 7, 2002), D26.
[546] For service budget comparisons, see *Air Force Magazine* 85 (May 2002), 51.
[547] Combatant command and other joint and service command relationships as of 2002 were as described in *Unified Action Armed Forces (UNAAF)*, Joint Publication 0-2 (Washington DC: Chairman of the Joint Chiefs of Staff, 10 July 2001).
[548] The announced rationale for creating Fleet Forces Command was not unlike that for the creation of the United States Fleet in 1922, which was said to have "promoted the closer coordination of effort and

uniformity of practice which are so necessary to the most effective operation of our fighting forces. This is in line with the most advanced ideas of naval administration." See *Annual Reports of the Navy Department for the Fiscal Year 1923* (Washington DC: Government Printing Office, 1924), 3. On the standing up of Fleet Forces Command, see Admiral Robert J. Natter, "New Command Unifies the Fleet," Naval Institute *Proceedings* 128 (January 2002), 72-4.

[549] U.S. Atlantic Command had been re-designated the Joint Forces Command in 1999. By October 2002, it had been stripped of it's area responsibilities, so as to be able to focus on joint force integration and innovation. It retained combatant command over the Air Combat Command, the Army Forces Command, the Atlantic Fleet, and Marine Forces Atlantic.

[550] Operation Enduring Freedom was initially centrally directed by the Commander-in-Chief, U.S. Central Command, General Tommy Franks, U.S. Army, from his headquarters in Tampa, Florida. A subordinate Combined Joint Task Force was not set up to direct operations in Afghanistan until the summer of 2002.

[551]U.S. Department of Defense, *Fact Sheet: International Contributions to the War against Terrorism* (Washington DC: Department of Defense Office of Public Affairs, May 22, 2002)

[552] On the anti-piracy patrol, see William N. McMichael, "U.S. Vessels Patrol for Pacific Pirates," *Navy Times* (17 June 2002); Lieutenant (Junior Grade) Lay, "History Repeated in Strategic Strait," *Today's NavNews*, (Washington DC: Navy Media Center, April 26, 2002); William H. McMichael, "Navy on Lookout for Pirates in Indonesia," *Navy Times* (January 28, 2002), 10; and Lieutenant Charles Grayson, "USS Ford Guards Southeast Asian Trade Route," *Today's NavNews*, (Washington DC: Navy Media Center, January 10, 2002).

[553] On the search for terrorists at sea in the Mediterranean, see Vernon Loeb, "Fighting Terror on the High Seas," *Washington Post* (June 11, 2002), 15.

[554] "Navy, Coast Guard Join Forces for Homeland Security," (Commander U.S. Coast Guard Atlantic Area and Commander in Chief U.S. Atlantic Fleet Joint Media Release (November 5, 2001).

Deployment strategies and innovation

1775-1785 innovations

[555] Independent civilian inventor David Bushnell created and deployed the *Turtle* - a submersible that unsuccessfully attacked the British flagship in New York harbor in 1776. The next year Bushnell unsuccessfully launched a series of "torpedoes' - drifting sea mines - against the British fleet off Philadelphia. See Christman, *Naval Innovators*, 1-6.

1785-1798 innovations

[556] The British and French had already built large 44-gun frigates, but the American naval constructor Joshua Humphreys was the first to provide such ships with innovative full-length, one-piece, pre-stressed diagonals, and to unify strength members at lower- and main-deck levels. See Commander Tyrone G. Martin (Retired) and Commander John C. Roach, "Humphreys's Real Innovation," *Naval History*, 8 (March-April 1994), 32-37. See also Christman, *Naval Innovators*, 16-25.

1798-1815 innovations

[557] In January 1815, General Andrew Jackson used the Mississippi River steamer *Enterprise* to transport troops and supplies and to carry dispatches before the Battle of New Orleans. *Demologos*, the world's first steam-powered warship, was designed by the inventor Robert Fulton to break blockades of American ports. The Navy held successful sea trials in 1815, but the ship - renamed *Fulton* - was never used as a warship. She served as a receiving ship until she accidentally blew up in 1829. *Demologos* was the first of several pre-Civil War designs for floating steam batteries for coastal defense, none of which yielded operational systems. See Christman, *Naval Innovators*, 31-44; and Lawrence Sondhaus, *Naval Warfare, 1815-1914*, (London: Routledge, 2001), 18.

[558]The ship-of-the-line *Independence* served in the fleet for almost 100 years, much of that time as a receiving ship. She was finally stricken in 1913.

[559] In 1810, in need of an innovative counter to a "harpoon torpedo" (mine) being tested against an American warship by the American inventor Robert Fulton, Commodore John Rodgers swathed the ship with a heavy net, fixed in place with spars and grapnel hooks, and bristling with scythes fitted to long spars. Thus began the history of U.S. navy mine countermeasures. See Tamara Moser Melia, *"Damn the Torpedoes": A Short History of U.S. Naval Mine Countermeasures, 1777-1991* (Washington DC: Naval Historical Center, Department of the Navy, 1991), 7-8. On the civilian-designed and -operated American submersibles and "torpedoes" of the War of 1812, and British efforts to counter them, see De Kay, *The Battle of Stonington*, 34-6, 54-70, 102-6, and 128-31.

[560] The advanced base in the Marquesas, at Nukuhiva Island, was constructed by the ship's company of the frigate *Essex*, on its commerce-raiding deployment in the Southeast Pacific during the War of 1812. It was used for re-outfitting and repair of *Essex* and its prizes in the fall of 1813, actively defended from hostile Marquesan attacks by a Navy-Marine team that took casualties, and finally abandoned in 1814. See Vincent A. Tansano, *A History of the Seabees* (Port Hueneme CA: Naval Construction Battalion Center, 1997) and on-line at http://www.history.navy.mil/faqs. See also *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946*, vol. 2 (Washington DC: USGPO, 1947).

1815-1841 innovations

[561] On the creation of the U.S. Navy Depot of Charts and Instruments in 1830, and its role as the forerunner of the Naval Observatory, the Naval Hydrographic Office, and other institutions of U.S. naval scientific innovation, see Steven J. Dick, "Centralizing Navigational Technology in America: The U.S. Navy's Depot of Charts and Instruments, 1830-1842," *Technology and Culture* 33 (July 1992), 467-509; and Christman, *Naval Innovators*, 52-57. Christman points out that the first U.S. Navy ordnance laboratory was constructed at this time as well, ibid., 48-9.

[562] Robert Fulton's 1815 *Demologos* - also known as *Fulton* - had been the first of several pre-Civil War designs for floating steam batteries for coastal defense. None was adequately funded and none yielded operational systems. The Navy did commission its first steamship - the auxiliary *Sea Gull* - to help fight pirates in the Caribbean in 1822. In 1837 the Navy commissioned an unsuccessful armed steamship, *Fulton II*, before finally launching its first steam warships, the sidewheel frigates *Mississippi* and *Missouri*, in 1841. On the introduction and development of steam propulsion in the U.S. Navy, see Donald L. Canney, *The Old Steam Navy*, vol. 1, *Frigates, Sloops and Gunboats, 1815-1885* (Annapolis MD: Naval Institute Press, 1990). For a critique of the U.S. Navy's tardy introduction of steam propulsion, see Captain Edward L. Beach (retired), "The Slow Advent of Steam", in *The United States Navy: 200 Years* (New York: Henry Holt and Company, 1986), chap. 6.

[563] By 1860, while its share of world manufacturing output was well behind that of Great Britain, the United States had already surged past Germany and Russia and was on the point of overtaking France. See Kennedy, *The Rise and Fall of the Great Powers*, 179.
[564] One of the bureaus set up in 1843 was the Bureau of Navigation. While focused principally on personnel administration, this bureau came to be used as an office of naval operations as well. Later it would come to receive and handle all records and reports of ships and squadrons, and prepare and issue all general and special orders and changes in Navy Regulations. See Henry P. Beers, "The Bureau of Navigation, 1862-1942", *American Archivist* 6 (October 1943), 212-252.
[565] On the long-lived bureau system, see Thomas W. Ray, "'The Bureaus Go On Forever'", Naval Institute *Proceedings* 94 (January 1968), 50-63.
[566] The Engineering Corps was comprised of officers who specialized in the experimentation with, construction, operation, maintenance and repair of steam power plants for warships. Its creation was controversial, and its career until merged with the line in 1899 was stormy. See Paullin, *Paullin's History of Naval Administration*, 235-8; and Lance C. Buhl, "Mariners and Machines: Resistance to Technological Change in the American Navy, 1865-1869," *Journal of American History,* 61 (1974).
[567] On the founding of the U.S. Naval Academy, see Jack Sweetman and Thomas Cutler, *The U.S. Naval Academy: An Illustrated History* (Annapolis MD: Naval Institute Press, 1995).
[568] On the continued development of steam warships for the U.S. Navy, including the side-wheeler *Fulton II*, see Brodie, "Steam Comes to the Battle Fleet," "Tactics and Strategy Under Steam," and "Geography and the Fuel Problem," chaps. in *Sea Power in the Machine Age*, 17-115; and Christman, 78-87. On the development of the Dahlgren shell guns - also used with solid shot - see Schneller, *Quest for Glory*.
[569] The U.S. Navy's innovative screw sloop *Princeton* was laid down in 1841 and launched in September 1843, five months after the British screw sloop *Rattler*. *Princeton* was followed by the never-completed screw-propelled "Stevens Battery," and by a few Navy steamers equipped with revolutionary but ultimately unsuccessful "Hunter's wheels" - horizontal underwater paddle wheels. See Sondhaus, *Naval Warfare,* 39 & 41; and Christman, *Naval Innovators*, 90-95.
[570] On iron hulls, see Brodie, "Timber Gives Way to Iron" and "The New Fabric of Sea Power," chaps. in *Sea Power in the Machine Age*, 137-157.
[571] Six of these were first class steam frigates with screw propellers; twelve were steam screw sloops. On the U.S. Navy's use of steam warships - and ships of the line - during the Mexican War and the years prior to the Civil War, see Sondhaus, *Naval Warfare*, 44-5, 56-7, & 68-9.
[572] On American experiments with floating and submerged homeland defense systems before the Civil War, see Browning, "Alternatives and Auxiliaries," chap. in *Two if By Sea*, 78-105
[573] On the founding of the Naval Observatory and Naval Almanac Office, see Christman, *Naval Innovators*, 55-57 & 111-119.
[574] U.S. Navy innovation in astronomy, meteorology and hydrography was largely the result of the efforts of Lieutenant Matthew Fontaine Maury, successively Superintendent of the Depot of Charts and the Naval Observatory in the 1840s, and author of world-acclaimed texts on oceanography and other scientific subjects. See Christman, *Naval Innovators*, 111-116.
[575] " . . . the abolition of flogging became the greatest single change to occur in the navy's treatment of enlisted men until the twentieth century," James E. Valle, *Rocks and Shoals: Order and Discipline in the Old Navy, 1800-1861* (Annapolis MD: Naval Institute Press, 1980) 61. On the end of dueling by officers in the U.S. Navy by the time of the Civil War, see Charles Oscar Paulling, "Dueling in the Old Navy," Naval Institute *Proceedings* 35 (December 1909), 1155-1197. See also Harold D. Langley, *Social Reform in the United States Navy, 1798-1862* (Urbana IL: University of Illinois Press, 1967).

[576]There had been no participation in the Mexican War by American privateers. On the American refusal to accede to the 1856 Declaration of Paris outlawing privateering, see Thompson, *Mercenaries, Pirates and Sovereigns*, 70-75. On the lack of American privateering in the war with Mexico, see Commander Mel Chaloupka, Commander James E. Watters, and Lieutenant Commander L. L. Borges-DuBois, *United States Naval Reserve: Survey of Historical Trends* (Newport RI: Naval War College, Center for Naval Warfare Studies, Advanced Concepts Department, 15 August 1992), B-7.
[577] Captain had been the highest rank in the Navy from 1775 until the creation of the temporary rank of Flag Officer in 1859. The Congress had routinely balked at creating a title reminiscent of European nobility, although successive secretaries of the navy had requested it, to ensure equality with the Army and for foreign representational purposes. The U.S. Army, however, had been led by generals since the War for Independence, with George Washington and Winfield Scott having attained the rank of lieutenant general. See Oliver, *Why is the Colonel Called Kernal?*

1861-1865 innovations

[578] The temporary 1861 "Blockade Board" included four civilian, military and naval experts under Captain Samuel Du Pont, to recommend military and naval operations and force dispositions on the Atlantic and Gulf Coasts to the Secretary, and to devise methods for rendering the blockade effective. See Kevin J. Weddle, "'There should be No Bungling About this Blockade:' The Blockade Board of 1861 and the Making of Union Naval Strategy", *International Journal of Naval History*, 1 (April 2002) (on-line). The office of Assistant Secretary of the Navy was later abolished, in 1869, although it would be revived in the 1890s..
[579] In 1862, Congress finally authorized the Navy eighteen Commodores and nine Rear Admirals. In 1864, Rear Admiral David Glasgow Farragut, the hero of the Battle of New Orleans, was made a Vice Admiral - the same year Major General Ulyses S. Grant had become a Lieutenant General. See Oliver, *Why is the Colonel Called "Kernal"?* .
[580] On ironclads, see especially Earl J. Hess, "Northern Response to the Ironclad: A Prospect for the Study of Military Technology," *Civil War History*, 31 (June 1985), 126-143"; and William C. Davis, *Duel Between the First Ironclads* (Garden City NY: Doubleday, 1975)
[581] The number of ironclads is from Canney, *Lincoln's Navy*, 69.
[582] A notable innovation was a "chill room" on board *Connecticut*, a steamer that deployed the length of the blockade carrying fresh beef for the blockader crews. This refrigeration compartment carried 59,000 pounds of beef quarters, hung on hooks, and 125 tons of ice. See Canney, *Lincolns Navy*, 184.
[583] On Union mine countermeasures, see Melia, *"Damn the Torpedoes,"* 11-16.
[584] In 1861 a civilian aeronaut ascended in a balloon from the deck of an Army steamship to observe Confederate Army positions at Hampton Roads, Virginia. See R.D. Layman, *Before the Aircraft Carrier: The Development of Aviation Vessels, 1849-1922* (Annapolis MD: Naval institute Press, 1989), 115.
[585] A new signal book was issued by the Navy Department in 1864, and Commander Foxhall A. Parker published *Squadron Tactics Under Steam*, based on his experience commanding a gunboat flotilla. See Robison and Robison, *A History of Naval Tactics*, 673.; and Canney, "Civil War Naval Tactics", chap. in *Lincoln's Navy*, 186-205.

1861-1865 innovations

[586] On the Confederacy's underwater innovations, see R. Thomas Campbell, *Hunters of the Night: Confederate Torpedo Boats in the War Between the States* (Shippensburg PA: Burd Street Press, 2000); and Louis S. Schafer, *Confederate Underwater Warfare: An Illustrated History* (Jefferson NC: McFarland and Company, 1996).
[587] Confederate Navy Commander Matthew Fontaine Maury (the pre-war U.S. Navy's pre-eminent scientist and oceanographer), began to experiment with underwater mines in 1861. He also sought to build a Jeffersonian gunboat fleet for homeland defense of the Confederacy, an effort soon terminated as the boats' limitations became evident. See ibid., 58-61.
[588] The Confederacy developed small, semi-submerged torpedo boats called *Davids*, the first of which attacked the Union ironclad steamer *New Ironsides* in 1863 in Charleston harbor, taking her out of the blockade line for a year. In 1864, the Confederate submersible *H.L. Hunley* attacked and sank the blockading steam sloop *Housatonic* off Charleston. This was the first instance in history of a submarine sinking a warship.
[589] In July 1862, *Teaser* operated a balloon for waterborne reconnaissance of Union positions along Virginia's James River. See Layman, *Before the Aircraft Carrier*, 14.
[590] For an argument that the Confederacy would have been better served by investing more in ironclads for homeland defense and less in forward deployed commerce raiders, see David G. Surdam, "The Confederate Naval Buildup: Could More have been Accomplished?" *Naval War College Review*, 54 (Winter 2001), 107-127.

1865-1889 innovations

[591] On the many technological advances of the post-Civil War Navy, see Frederick S. Harrod, "New Technology in the Old Navy: The United States Navy During the 1870s," *The American Neptune* 53 (Winter 1993), 5-18. Harrod cites advances in torpedoes, naval guns, compound engines, metal testing, electricity, and ship design.
[592] The Navy's experimentation focus shifted to mobile torpedoes, however, leaving stationary torpedoes - mines - to the Army. In 1866 an Army Engineering School of Application was created at Willett's Point, New York, to develop doctrine, techniques and equipment for underwater controlled minefields. The Navy would resume interest in mines early in the twentieth century, however. The Navy Torpedo Station was the direct ancestor of today's Naval Undersea Warfare Center (NUWC) at Newport. On the opening and early work of the Navy Torpedo Station, see Christman, *Naval Innovators*, 194-9, 217-226. On the Army activities at Willett's Point, see Browning, *Two if by Sea*, 140-141. On Navy programs in mine countermeasures during this period, see Melia, *"Damn the Torpedoes"*, 18-21.
[593] This was the Howell torpedo. On U.S. Navy mobile torpedo development, see Friedman, *US Naval Weapons*, 115.
[594] The incandescent lamp had been developed commercially since 1879. It soon became an important aid to navigation and was relied upon to detect the approach of enemy torpedo boats, and to illuminate minefields, to prevent counter-mining. The United States installed incandescent lights on *Albatross* - a new Navy-manned fisheries research steamer - in 1882, and on the screw sloop *Trenton* in 1883. *Trenton* was the first naval warship in the world to be so lighted. See Edgar K. Thompson, "The First Light," Naval Institute *Proceedings* 80 (December 1954), 1390-91; and Robison and Robison, *A History of Naval Tactics* (Annapolis MD: Naval Institute Press, 1942), 720.

[595] The Naval Proving Ground moved to Indian Head, Maryland and later to Dahlgren, Virginia. It was the direct ancestor of today's Naval Surface Warfare Center (NSWC). See Christman, *Naval Innovators*, 237-8 and 296-8; and Harrod, "New Technology in the Old Navy," 11

[596] By the 1870s, it was possible to send cables from Washington to any major port around the world with a delay of a few hours. American-owned cables were few, however, and extensive U.S. Navy use of cables did not begin until the 1880s. See Long, "The Communications Revolution and the Years 1882-1883 as the Dividing Line Between the 'Old' and 'New' Navy," in *Gold Braid and Foreign Relations*, 11-14.

[597] In 1867, the Chief of the Bureau of Navigation, Commodore Thornton A Jenkins, published *An Introduction to the United States Signal Code*, which included the U.S. Navy's first extensive fighting instructions. In 1869, Commander Foxhall A. Parker - author of the 1864 *Squadron Tactics Under Steam* - published *Fleet Tactics Under Steam*. In 1873, a *Tactical Signal Book* supplemented Jenkins's *Introduction*. A new *General Signal Book* was published in 1876. In 1886, doctrine for U.S. Navy landing forces was developed and promulgated in the Naval Academy publication *Naval Brigade and Operations Ashore.* On the signal books and fleet tactics, see Robison and Robison, *History of Naval Tactics*, 674-9, and 698. On the Navy's landing force doctrine, see William F. Atwater, "United States Army and Navy Development of Joint Landing Operations, 1898-1942," (Ph.D. diss.: Duke University, 1986), 14.

[598] In 1866, Congress allowed the promotion of Vice Admiral Farragut to the rank of admiral, and Rear Admiral David Dixon Porter to Vice Admiral. When Farragut died in 1870, Porter became Admiral and Stephen C. Rowan Vice Admiral. Meanwhile, Grant, Sherman and Sheridan were successively made General of the Army, a four-star rank. The Navy and its officers had finally achieved a parity in status with the Army. See Oliver, *Why is the Colonel Called "Kernal?"*

[599] For an analysis of the early role of the Naval Institute and its journal, see Lawrence Carroll Allin, "The United States Naval Institute: Intellectual Forum of the New Navy: 1873-1889," (Manhattan S: Kansas State University, 1978).

[600] In the professional debates of the period on planned naval employment strategy, three variants requiring forward deployment - battle fleet operations, commerce raiding, and *guerre de course* - competed with homeland defense. See Shulman, *Navalism and the Emergence of American Sea Power*.

[601] In 1879, two members of the U.S. Naval Academy graduating class of that year were sent to the Royal Naval College, Greenwich, England for study in naval construction preparatory to being assigned to the Construction Corps. See Rear Admiral Julius A. Furer (Retired), *Administration of the Navy Department In World War II* (Washington DC: U.S. Government Printing Office, 1959), 234.

[602] On the founding and early history of the Office of Naval Intelligence, see Jeffery M. Dorwart, *The Office of Naval Intelligence: The Birth of America's First Intelligence Agency, 1865-1918* (Annapolis MD: Naval Institute Press, 1979); Robert G. Angevine, "The Rise and Fall of the Office of Naval Intelligence, 1882-1892: A Technological Perspective," *Journal of Military History*, 62 (April 1998), 291-312; and Captain Wyman H. Packard USN (Ret), *A Century of Naval Intelligence* (Washington DC: Department of the Navy, 1996).

[603] To teach the advanced skills that new naval technology now demanded, the Navy set up a gunnery class at the Washington Navy Yard in 1883. A similar school opened at Newport in 1885. See Harrod, *Manning the New Navy*, 89, 188.

[604] On the founding and early history of the Naval War College, see John B. Hattendorf, B. Mitchell Simpson, III, and John R. Wadleigh, *Sailors and Scholars: The Centennial History of the U.S. Naval War College* (Newport RI: Naval War College Press, 1984); and Ronald Spector, *Professors of War: the Naval War College and the Development of the Naval Profession* (Newport RI: Naval War College Press, 1977).

[605] In August 1884, Acting Rear Admiral Stephen Luce conducted a surprise landing exercise off Long Island with five wooden screw warships from the North Atlantic Squadron. In 1887, Luce undertook - this time jointly with the Army - a second squadron exercise, off Newport, that included amphibious

assault, mine warfare, harbor defense, and torpedo boat attack. In 1888, off Pensacola, the North Atlantic Squadron practiced another landing exercise. On Luce's exercises, see John B. Hattendorf, "Stephen B. Luce: Intellectual Leader of the New Navy," in *Admirals of the New Steel Navy: Makers of the American Naval Tradition, 1880-1930*, ed. James C. Bradford (Annapolis MD: Naval Institute Press, 1990), 15; and John D. Hayes and John B. Hattendorf, *The Writings of Stephen B. Luce* (Newport RI: Naval War College Press, 1975), 13-15 & 195-199.

[606] On the founding of the American Society of Naval Engineers, see R. B. Madden, "The American Society of Naval Engineers," *ASNE* August 1954), 553-558; and John D. Alden, "Growth of the New American Navy (1888-1898)," in *Naval Engineering and American Seapower*, eds. Rear Admiral Randolph W. King (Retired) et al., 33-64.

[607] State naval militias were forerunners to the modern U.S. Naval Reserve. The movement to form a Naval Reserve had begun in 1873. See Kevin R. Hart, "Towards a Citizen Sailor: The History of the Naval Militia Movement, 1888-1898," *The American Neptune* 33 (October 1973), 258-279); and William R. Kreh, *Citizen Sailors: The U.S. Naval Reserve in Peace and War* (New York: David McKay Company, Inc, 1969), 186.

[608] Central to these writings were historical re-interpretations of the War of 1812 and the Civil War. On the re-interpretation of the War of 1812 by Theodore Roosevelt (in 1882) and others, see "The Influence of History upon Sea Power: The Navalist Reinterpretation of the War of 1812", chap. in Shulman, *Navalism and the Emergence of American Sea Power*, 9-25. Mahan's *The Gulf and Inland Waters: The Navy In the Civil War, vol. 3* (New York: Charles Scribner's Sons) was published in 1883.

1889-1905 innovations

[609]The Navy's first battleships were *Texas* and *Maine*, commissioned in 1895. On this and subsequent innovations in battleship design and systems, see Norman Friedman, *U.S. Battleships: An Illustrated Design History* (Annapolis MD: Naval Institute Press, 1985). The Navy launched its first torpedo boat in 1890 and commissioned its first destroyer in 1902. See Norman Friedman, *U.S. Destroyers: An Illustrated Design History* (Annapolis MD: Naval Institute Press, 1982). The Navy commissioned its first submarine, *Holland*, in 1900. A dozen followed over the next seven years, all intended for harbor defense and not capable of extended sea operations. See Norman Friedman, *U.S. Submarines Through 1945* (Annapolis MD: Naval Institute Press, 1995). The first U.S. Navy radio message was sent from a ship at sea in late 1899. Establishment of a network of radio shore stations and shipboard wireless sets began in the spring of 1903. The first fleet exercise to use radio took place that summer. By 1905, 48 vessels and 36 shore stations on both coasts and in the Caribbean had been or were becoming so equipped. By 1908, radio was installed in all surface vessels of the U.S. Navy, even torpedo boats. Wireless gave ships a communications range of 50 to 75 miles from shore stations or other elements of the fleet. Scouting cruisers could now operate beyond the visual range of the rest of the fleet. On the introduction of radio into the fleet, see Susan J. Douglas, "Technological Innovation and Organizational Change: The Navy's Adoption of Radio, 1899-1919," in *Military Enterprise and Technological Change: Perspectives on the American Experience*, ed. Merritt Roe Smith (Cambridge MA: The MIT Press, 1985), 117-173; Captain Linwood S. Howeth, Retired, *History of Communications-Electronics in the United States Navy* (Washington DC: U.S. Navy Bureau of Ships and Office of Naval History, 1963); Rear Admiral Bern Anderson (Retired), "The Impact of Rapid Communications on the Employment of Naval Forces", Naval Institute *Proceedings* 77 (November 1951), 1157-1167; and Louis A. Gebhard, *Evolution of Naval Radio-Electronics and Contributions of the Naval Research Laboratory* (Washington DC: Naval research Laboratory, January 1976), 1-26.

[610] Engineer-in-Chief of the Navy Commodore George Melville introduced the first vertical triple-expansion engines in the battleships *Maine* and *Texa*s, which began construction in 1886 and were commissioned in 1895. This innovative type of engine so increased engine efficiency and reduced coal consumption that trans-oceanic deployments on steam alone, without the use of sails, were now possible. See John D. Alden, "Growth of the New American Navy," in *Naval Engineering and American Seapo*wer, ed. King, 35.

[611] In 1903, 13 Naval Districts were created, reporting to the Secretary of the Navy through the Chief of the Bureau of Navigation. Coastal defense was the only duty assigned, to be effected by district "mosquito fleets" of motor boats, yachts, and obsolete monitors. Their boundaries corresponded to existing Lighthouse Service districts. Command of the Naval Districts was a collateral duty of Navy Yard commanders, whose Navy Yard responsibilities often took precedence. Until World War I, they were largely paper planning constructs, to be fully constituted only in time of war, and without full-time staffs of their own. After World War I, they took on increasing administrative and logistics functions. See *Fifty Years of Naval District Development, 1903-1953* (Washington DC: Naval History Division, Office of the Chief of Naval Operations, June 1954).

[612] In 1891, the state naval militias were invited to deploy with the Squadron of Evolution. In 1898, The Navy created an Auxiliary Naval Force for coastal homeland defense during the Spanish-American War, drawn from the naval militias. On the expansion of the state naval militias and the Auxiliary Naval Force, see Hart, "Towards a Citizen Sailor," and Kreh, *Citizen Sailors*, 186-193.

[613] The Personnel Act of 1899 instituted the most sweeping changes to Navy personnel policies to date. Most importantly, it incorporated engineer officers into the line, ending a long and acrimonious debate. See James F. Downs, *Naval Personnel Organization: A Cultural-Historical Approach* (Reston VA: Development Research Associates, Inc., August 1982), 7-12. See also Christman, *Naval Innovators*, 307-314. Note too that, during this period, there was a revolution in the ethnic composition of the U.S. Navy enlisted force. Percentages of foreign-born and non-citizen enlisted personnel plummeted, as new policies of seeking recruits without prior sea service - and then limiting recruitment to citizens - were instituted. In 1890, 42 percent of the enlisted force were not citizens. By 1907, the number was 5.7 percent. See Harrod, *Manning the New Navy*, 17 & 55. Also, the first Chief Petty Officers appeared in the 1890s.

[614] On Dr. Charles E. Monroe's development of smokeless powder at the Naval Torpedo Station, see Christman, *Naval Innovators*, 314-319.

[615] The revolution in U.S. Navy gunnery fire control began in 1902 with the introduction of the continuous aim system and the development of new range projection instruments. See Friedman, *U.S. Naval Weapons*, 26-28; Paolo E. Coletta, *Admiral Bradley A. Fiske and the American Navy* (Lawrence KS: Regents Press of Kansas, 1979); Elting E. Morison, *Admiral Sims and the Modern American Navy* (Boston: Houghton Mifflin, 1942); and Hubert C. Johnson, "Anglo-American Naval Inventors, 1890-1919: Last of a Breed," *International Journal of Naval History*, 1 (April 2002).

[616] Construction of the Dewey dry dock was begun. When completed and deployed forward to the Philippines, it was the largest floating dry dock in the world. It was scuttled in 1942 during the Japanese invasion of the Philippines.

[617] Institutions created to foster technical and scientific innovation in the Navy included the Naval Gun Factory at the Washington Navy Yard; the U.S. Naval Proving Ground at Indian Head, Maryland; the Naval Torpedo Station and its laboratories; the Naval Powder Factory; and the Experimental Model Basin. See Christman, *Naval Innovators*, 324.

[618] New coaling-at-sea techniques and the seizure of temporary advanced bases were vital to deploying the coal-fueled battle fleet of a nation which -- unlike Britain and other European naval powers -- did not possess a worldwide network of coaling stations, but needed places to coal and repair its ships. On the Navy's waxing and waning interest in permanent forward bases and its concomitant interest in coaling at sea (sea basing) and seizing advanced bases, see Richard D. Challener, *Admirals, Generals and American Foreign Policy, 1898-1914* (Princeton NJ: Princeton University Press, 1973), 36-45. On coaling during

the Spanish-American War, see Mark L. Hayes, "War Plans and Preparation and their Impact on U.S. Naval Operations in the Spanish-American War," paper presented at *Congreso Internacional Ejercito y Armada en El 98: Cuba, Puerto Rico y Filipinas,* (23 March 1998).

[619] The first Navy sealift command was the Collier Service, established in 1898. It was replaced by the Naval Auxiliary Service in 1905. This service handled the sealift needs of the Navy until World War I. See *The Naval Establishment: Its Growth and Necessity for Expansion, 1930-1950* (Washington DC: Office of the Comptroller of the Navy, Executive Office of the Secretary, Department of the Navy, July 1951), 55.

[620] The Navy League of the United States was founded in 1902. On its creation, rationale and activities, see Armin Rappaport, *The Navy League of the United States* (Detroit MI: Wayne State University Press, 1962.

[621] Some innovations of the period didn't pan out, e.g.: the ironclad ram *Katahdin*, approved in 1889, commissioned in 1896, and sunk as a target in 1909. Another innovation that failed to catch on was the dynamite gun cruiser *Vesuvius*, commissioned in 1890, employed off Cuba in 1898, but converted to a torpedo-testing vessel in 1904. On *Katahdin*, see Stephen P. Budney, "Unusual Strange Ship *Katahdin*," *Naval History*, 8 (April 1994), 17-21. On *Vesuvius*, see James L. Mooney, ed., *Dictionary of American Naval Fighting Ships*, vol. 7 (Washington DC: Naval Historical Center, Department of the Navy, 1981), 499-500.

[622] Following the American naval victory over the Spanish squadron at the battle of Manila Bay, the American Commander, Commodore George Dewey, requested access to the Spanish cable from the Spanish governor in the Philippines. His request was refused, and he had the cable cut. A week later, with the main Spanish fleet still intact at Santiago, Cuba, U.S. Navy volunteer boat parties cut two of the three Cuba-Madrid cables at Cienfuegos, Cuba, under fire. These were the first instances in history of cables being cut at sea as acts of war. See Evelyn M. Cherpak, "Cable Cutting at Cienfuegos," Naval Institute *Proceedings* 113 (February 1987), 119-22.

[623] Neither the Americans nor the Spanish had acceded to the 1856 Declaration of Paris outlawing privateering, but neither side engaged in privateering operations during the war. Thompson, *Mercenaries, Pirates and Sovereigns*, 76 and 178.

1905-1914 innovations

[624] The Navy was experimenting with aircraft during this period, and slowly expanding its capabilities. The Navy accepted its first airplane - a seaplane - in 1911, and by 1914 had an air fleet of six seaplanes and six flying boats**.** Numbers of aircraft in the fleet for each year since 1911 are in Roy A. Grossnick, *United States Naval Aviation, 1910-1995* (Washington DC: Naval Historical Center, Department of the Navy, 1997), 447. The standard reference on naval aviation is Captain Archibald D. Turnbull and Lieutenant Commander Clifford L. Lord, *History of United States Naval Aviation* (New Haven: Yale University Press, 1949).

[625] The innovative use of sea mines during the Russo-Japanese War of 1904-5 gave impetus to the development of rudimentary mine warfare capabilities in other navies, including the U.S. Navy. French mines were purchased starting in the mid-1900s. The protected cruiser *San Francisco*, first commissioned in 1890, was re-commissioned as the Navy's first minelayer in 1912. Mine-laying and minesweeping experiments were conducted in 1913. See R. C. Duncan, *America's Use of Sea Mines* (White Oak MD: U.S. Naval Ordnance Laboratory, 1962); and Norman Friedman, *US Naval Weapons*, 111.

[626] The innovative introduction of oil fuel returned to the fleet much of the strategic mobility it had enjoyed during the age of sail but lost with the advent of coal-fueled steam propulsion - and the concomitant great decrease in warship un-re-supplied cruising ranges. Based on the experience of the

Great White Fleet deployment, the Navy had built and experimented with innovative coaling-at-sea systems. More importantly, the Navy began to switch to oil fuel. Oil was far easier to handle than coal while refueling, and weighed only half as much for the same amount of propulsive power. In 1909, an experimental oil-burning installation on the monitor *Cheyenne* was successful. The first fleet oiler *Kanawha* was commissioned in 1915. Still, the logistics potential of the country to support its fleet in time of war was hampered by the small size of its merchant marine. This was not only dwarfed by the size of the British merchant fleet - like all other nations of the period - but also smaller than the German merchant fleet. On fuel and refueling, see John H. Maurer, "Fuel and the Battle Fleet: Coal, Oil, and American Naval Strategy, 1898-1925," *Naval War College Review* 34, (November-December 1981), 60-77; Marvin O. Miller et al., *Underway Replenishment of Naval Ships* (Port Hueneme CA: Naval Surface Warfare Center, Port Hueneme Division, Underway Replenishment Department, 1992), 5-7; and Thomas Wildenberg, *Gray Steel and Black Oil: Fast Tankers and Replenishment at Sea in the U.S. Navy, 1912-1995* (Annapolis MD: Naval Institute Press, 1996), 2-7. For world merchant fleet comparisons as of 1914, see Gibson and Donovan, *Abandoned Ocean*, 165.

[627] On the new engines, boilers and other engineering innovations, see John J. Fee, "The Rise of American Naval Power," in *Naval Engineering and American Sea Power*, ed. King, 74-6.

[628] Graduate studies in marine engineering for naval officers, under the Bureau of Steam Engineering, began in 1905 with 10 students assigned to on-the-job training at naval stations. In 1909, this program was upgraded by the creation of a post-graduate School of Marine Engineering at Annapolis. In 1912 the school became the Postgraduate Department of the Naval Academy, and its curriculum was expanded to include courses in other technical disciplines. From these roots would grow the U.S. Naval Postgraduate School, established in 1951 at Monterey, California. See "A Short History of the Naval Postgraduate School," Naval Postgraduate School Public Affairs website, http://www.nps.navy.mil/PAO/history.htm; and William M. McBride, "The 'Greatest Patron of Science'? The Navy-Academia Alliance and U.S. Naval Research, 1896-1923," *Journal of Military History* 56 (January 1992), 7-33.

[629] Congress having rebuffed several attempts since 1900 to establish a naval general staff, the Secretary divided his department into four divisions, each headed by an "aid", who reported directly to him. The first Aid for Operations was Rear Admiral Richard Wainwright, whose division was styled the Division of Operations of the Fleet. The division inherited from the Bureau of Navigation the office that received and handled all records and reports of fleets, squadrons and ships, and that prepared all general and special orders and changes in Navy Regulations. On Admiral Wainwright as Aid for Operations, see Captain Damon E. Cummings (Retired), *Admiral Richard Wainwright and the United States Fleet* (Washington DC: U.S. Government Printing Office, 1962.

[630] In 1914, President Woodrow Wilson's Secretary of the Navy, Josephus Daniels, issued General Order 99, which prohibited alcoholic beverages on U.S. Navy warships, yards, and stations. See Hanson W. Baldwin, "The End of the Wine Mess," Naval Institute *Proceedings* 84 (August 1958), 82-91. On the Nurse Corps, see "Women in the U.S. Navy: Historic Documents," Naval Historical Center website: http://www.history.navy.mil.mil/faqs48-3b.htm

1914-1917 innovations

[631] In a fairly belated move, reacting to European wartime experience, the U.S. Navy finally fitted the first gun directors to its battleships in 1916 (although Admiral Bradley Fiske had pioneered this innovation as early as 1890). See Padfield, *Guns at Sea*, 252-4. The Navy was also experimenting with aircraft during this period, and slowly expanding its capabilities. In 1914 the Navy deployed a dozen aircraft. In 1915, the Navy experimented with the first catapult launch from a ship, and the next year launched an aircraft by catapult from a ship under way. The potential of aircraft in wartime was evident, and the fleet had 54

aircraft by April 1917, when the United States entered World War I. The Navy also began experimenting with lighter-than-air blimps in 1915, and deployed a few dozen during World War I. For aircraft numbers, see Grossnick, *United States Naval Aviation,* 447. On the development of the initial U.S. Navy blimps, see William F. Althoff, *Sky Ships: A History of the Airship in the United States Navy* (New York; Orion Books, 1990), 1-6; and Roy A. Grossnick, ed. *Kite Balloons to Airships: The Navy's Lighter than Air Experience* (Washington DC: Deputy Chief of Naval Operations (Air Warfare) and Commander, Naval Air Systems Command, 1987), 1-10.

[632] The U.S. Navy began to produce its own mines in 1915. *San Francisco*, the Navy's first minelayer, was joined by the re-commissioned *Baltimore* in 1915.

[633] On *Bridge* (AF-1), see A.D. Baker III, "Historic Fleets," *Naval History* 15 (February 2001), 8.

[634] Secretary of the Navy Josephus Daniels, who had opposed creation of the office of Chief of Naval Operations, appointed a relatively obscure captain, William S. Benson, to the job. Benson took over the duties of the Aid for Operations, Admiral Bradley Fiske. Benson had a meager staff and no authority over the technical bureaus, including the Bureau of Navigation, which assigned commanders to ships. The Secretary still communicated directly with the fleet commanders, as did Benson. Nevertheless, on the eve of American involvement in World War I, there was now in the Navy Department an office specifically charged with planning for and conducting war. Henceforth Secretaries of the Navy would have to share operational command responsibilities towards the fleet in some fashion with their Chiefs of Naval Operations. On the Office of the Chief of Naval Operations (and much else), see Henry P. Beers, "The Development of the Office of the Chief of Naval Operations", *Military Affairs*, 10 (Spring 1946), 40-68; 10 (Fall 1946) 10-38; 11 (Summer 1947), 88-99); and 11 (Winter 1947) 229-237. See also Robert W. Love, Jr., *The Chiefs of Naval Operations* (Annapolis MD: Naval Institute Press, 1980), especially the introductory chapter. On Admiral Benson as CNO, see Mary Klachko, with David F. Trask, *Admiral William Shepherd Benson: First Chief of Naval Operations* (Annapolis MD: Naval Institute Press, 1987).

[635] In 1915, the Congress authorized an Admiral and a Vice Admiral each for the Atlantic, Pacific and Asiatic Fleets. (Since the death of Vice Admiral Rowan in 1890 and that of Admiral Porter in 1891, the Congress had not allowed the promotion of any of the Navy's rear admirals to succeed them). The one exception was Admiral of the Navy George Dewey, who served in that rank from 1899 until his death in 1917. (Meanwhile, the Army was allowed no full generals from 1884 until 1917). On creation of the Naval Reserve Force, see Kreh, *Citizen Sailors*, 194-5; and Chaloupka, Watters, and Borges-DuBois, *United States Naval Reserve*. On the Navy's rank structure, see Oliver, *Why is the Colonel Called "Kernal"?*

[636] The Naval Consulting Board's most well known achievement was its recommendation that the Navy create its own experimental laboratory, a recommendation approved by Congress in 1916 and resulting in the commissioning of the Naval Research Laboratory (NRL) in 1923. On NRL and its origins, see McBride, "The 'Greatest Patron of Science'?"; Albert Holt Taylor, *The First Twenty-Five Years of the Naval Research Laboratory* (Washington DC: Department of the Navy, 1948); David K. Allison, *New Eye for the Navy: The Origin of Radar at the Naval Research Laboratory* (Washington DC: U.S. Naval Research Laboratory, 1981); and Gebhard, *Evolution of Naval Radio-Electronics*.

[637] In addition to clerical duties, the "yeomanettes" - more correctly Yeomen (F) - served as translators, draftsmen, fingerprint experts, camouflage designers and recruiting agents. Five served with hospital units in France, and one with the Office of Naval Intelligence in Puerto Rico. There were also 300 "marinettes," as female Marine enlisted personnel were called. On the entry of women into the Navy, see Jean Ebbert and Marie-Beth Hall, "America's First Enlisted Women," chap. in *Crossed Currents; Navy Women from WWI to Tailhook* (Washington DC: Brassey's (US), 1993), 3-21; and "Women in the U.S. Navy: Historic Documents," Naval Historical Center website: http://www.history.navy.mil.mil/faqs48-3b.htm

1917-1919 innovations

[638] For an overview of U.S. Navy technological developments before, during and after World War I, see Prescott Palmer, "World War I Expansion (1914-21)," in *Naval Engineering and American Seapower*, 91-116
[639] On the innovative development and deployment of primitive radio direction-finders at sea during World War I, see Howeth, *History of Communications-Electronics*, 261-5. On U.S. Navy wartime experimentation with and deployment of SONAR, see ibid. 302-312.
[640] On the introduction and wartime development of depth charges and their projectors, see Friedman, *US Naval Weapons*, 122-3. On new U.S. Navy mines, see Duncan, *America's Use of Sea Mines*, 49-54.
[641] The new oiler *Maumee*, stationed in the mid-Atlantic with LT Chester W. Nimitz commanding, refueled short-legged destroyers moving forward to Europe. This was the first underway oil refueling during war and in anything but a flat calm. See Wildenberg, *Grey Steel and Black Oil*, 9-14.
[642]The North Sea Mine Barrage was largely an American initiative. In June 1918, U.S. Navy forces under the command of Rear Admiral Joseph Strauss began laying mines across 240 miles of open sea from Scotland to Norway, with the object of penning Germany's U-Boats inside the North Sea. The belt was completed in September 1918 and operations to increase its width and density continued until the Armistice. 70,263 mines were laid, including 13,652 by cooperating Royal Navy forces.

1919-1922 innovations

[643] The number of U.S. Navy aircraft dropped from 2107 in November 1918 to 1221in 1922 to an interwar low of 700 in 1924, but never returned to its April 1917 pre-war level of only 54. See Grossnick, *United States Naval Aviation*, 447. Naval aviation was henceforth a significant component of the fleet.
[644] In 1920, the Navy conducted experiments on the effects of aerial bombs on warships -- in this case the old battleship *Indiana*. In 1921, with much public fanfare by the Army, a series of tests was conducted by Army, Navy and Marine Corps aircraft on the effects of aerial bombs on captured German warships, sinking a submarine, a destroyer, a cruiser and the battleship *Ostfriesland*. There is a large literature on these and similar subsequent tests. See especially Melhorn, *Two-Block Fox*, 60-73; Turnbull and Lord, *History of United States Naval Aviation*, 195-204; and Maurer Maurer, *Aviation in the U.S. Army, 1919-1939* (Washington DC: Office of Air Force History, 1987), 113-129.
[645] The Army was busy demobilizing during this period, and participating in the 1918-1923 occupation of Germany. With a push from the Army General Staff, in July 1919 the War and Navy Departments revived the Joint Army and Navy Board and its joint war planning activities. Reorganized and strengthened, and with a new subordinate Joint Army and Navy Planning Committee, it became an important strategy-making body. In 1919 and 1920, the Joint Planning Committee drew up Plan Green - for intervention in Mexico; completed staff studies on the defense of Hawaii and Panama, and worked on other drafts, including Plan White, for domestic homeland security contingencies in the United States. A Joint Army and Navy Munitions Board was created in 1922 to coordinate the production of war material. On the revival of the Joint Army and Navy Board, see Braisted, *United States Navy in the Pacific, 1909-1922*, 470. On the revival of the Joint Board and its initial post-war plans, see Ross, *American War Plans, 1919-1941*, vol. 1, x, xxvii. On the Joint Army and Navy Munitions Board and its subsequent activities, see *Federal Records of World War II*, vol. 2, *Military Agencies* (Washington DC: General Services Administration, National Archives and Records Service, The National Archives, 1951), 40-2.
[646] On the Navy's early post-war experimentation with a British-built dirigible, see Althoff, *Sky Ships*; and Grossnick, *Kite Balloons to Airships*. On the development of naval aviation ships, especially the carrier,

see Layman, *Before the Aircraft Carrier*, 118-124; and Charles M. Melhorn, *Two-Block Fox: The Rise of the Aircraft Carrier, 1911-1929* (Annapolis MD: Naval Institute Press, 1974).

[647] On *Langley* and subsequent U.S. Navy innovations in carrier design and systems, see Norman Friedman, *U.S. Aircraft Carriers; An Illustrated Design History* (Annapolis MD: Naval Institute Press, 1983).

[648] Observation aircraft on battleships came to be used principally for spotting gunfire - one of the great innovations of the period. Those on cruisers became primarily scouts. On the innovative development of catapults and aircraft from 1919 through 1923, see Larkins, *Battleship and Cruiser Aircraft of the United States Navy*, 10-13.

[649] The initiative to create the Naval Research Laboratory started before the war, but actual construction of facilities was delayed until after the war ended. See McBride, "The 'Greatest Patron of Science'?"; Taylor, *First Twenty-Five Years of the Naval Research Laboratory*; David K. Allison, *New Eye for the Navy*; and Gebhard, *Evolution of Naval Radio-Electronics.*

1922-1937 innovations

[650] Tactical doctrine for the battle line was worked and reworked throughout the interwar period. A major battleship modernization program was in effect from 1926 through 1934. *West Virginia*, which entered the fleet in October 1924, was the last battleship to do so until *Washington* deployed with the Atlantic Fleet in 1942. On battle line doctrine and tactics, see Trent Hone, "The Evolution of Fleet Tactical Doctrine in the USN, 1922-1941," (unpublished MS, February 1, 2002). On battleship modernization, see Friedman, *U.S. Battleships.*

[651] Numerous other technical innovations were integrated into the fleet during the interwar period: Armor-piercing shells, fewer duds in the production runs of shells, tracer shells for aircraft machine guns, improved safety buoys, gradual improvements in ant-aircraft weapon accuracy, incandescent flare shells, and diesel engines with lower weight-to-horsepower ratios. The list is from Rodney Carlisle, *Navy RDT&E Planning in an Age of Transition* (Washington DC: Navy Laboratory/Center Coordinating Group and Naval Historical Center, 1977), 5. On U.S. Navy tactical and technological innovations during the interwar period, see Williamson Murray and Allan R. Millet, eds., *Military Innovation in the Interwar Period* (Cambridge UK: Cambridge University Press, 1996); and James V. Jolliff and Keith B. Schumaker, "The Declining Years," and James L. McVoy, Virgil W. Rinehart, and Prescott Palmer, "The Roosevelt Resurgence," in *Naval Engineering and American Seapower*, ed. King, 119-200. On interwar refueling experimentation, see Wildenberg, "The Treaty Navy and the Problem of Refueling an Overseas Expedition," chap. in *Gray Steel and Black Oil*, 27-45. On the innovations in signals intelligence, see Frederick D. Parker, *Pearl Harbor Revisited: United States Navy Communications Intelligence, 1924-1941* (Ft. Meade, MD: National Security Agency, Center for Cryptologic History, 1994).

[652] On Nimitz and the introduction of the circular formations, see Potter, *Nimitz*, 139-40.

[653] On the interwar development of U.S. Navy submarine strategy and the fleet submarine, see Gary Weir, B*uilding American Submarines, 1914-1940* (Washington DC: Naval Historical Center, 1991), 40-46 and 114-116. See also Friedman, *U.S. Submarines Through 1945*; and Holger H. Herwig, "Innovation Ignored: The Submarine Problem - Germany, Britain, and the United States, 1919-1939," in *Military Innovation in the Interwar Period*, eds. Murray and Millett, 227-264.

[654] Important aviation innovations of the period included development of tactics for independent carrier strike task forces operating independently of the battle line; and development of optimum carrier deck spotting procedures for aircraft. There is a large literature on the interwar advances in naval aviation, especially carrier aviation. See especially Thomas C. Hone, Norman Friedman, and Mark Mandeles, *American & British Aircraft Development, 1919-1941* (Annapolis MD: Naval Institute Press, 1999); and

Geoffrey Till, "Adopting the Aircraft Carrier: The British, American, and Japanese Case Studies," in *Military Innovation in the Interwar Period*, eds. Murray and Millett, 191-226.

[655] The creation of an organizational innovation - BuAer - not only provided an institutional home to foster technical and tactical innovation in naval aviation, but also prevented naval aviation from being given short shrift by the powerful existing bureaus, all dominated by surface warfare officers and wedded to traditional concepts of support for the battle line. See William F. Trimble, *Admiral William A. Moffett: Architect of Naval Aviation* (Washington DC: Smithsonian Institution Press, 1994).

[656] Fleet Problem IX, held in 1929, featured a successful raid by *Saratog*a and an escorting cruiser on the Panama Canal. This is considered the beginning of the development of the carrier task force. See Eugene E. Wilson, "The Navy's First Carrier Task Force," Naval Institute *Proceedings* 76 (February 1950) 163-6.

[657] On the Navy's interwar experiments with lighter-than-air aircraft, see Douglas H. Robinson and Charles L. Keller, *"Up Ship! A History of the U.S. Navy's Rigid Airships, 1919-1935* (Annapolis MD: Naval Institute Press, 1982); Althoff, *Sky Ships*; and Grossnick, *Kite Balloons to Airships*.

[658] On the interwar development of dive bombing, see Thomas Wildenberg, *Destined for Glory: Dive Bombing, Midway, and the Evolution of Carrier Airpower* (Annapolis MD: Naval Institute Press, 1999). On the Navy's interest in high-altitude bombing and the invention of the Norden bombsight, see Albert L. Pardini, *The Legendary Secret Norden Bombsight* (Atglen PA: Schiffer Military History, 1999); and Stephen L. McFarland, *America's Pursuit of Precision Bombing*, *1910-1945* (Washington DC: Smithsonian Institution Press, 1995), 68-88 and passim.

[659] Unlike carriers, seaplanes and their tenders were not limited by the Treaty system, which enhanced their appeal to naval officers. On interwar patrol seaplane development, see Lieutenant Commander Joel J. White, *A Brief History of the Fleet Patrol Plane Squadrons* (Commander Aircraft, Base Force, n.d. but c.1935).

[660] In January 1934, the Marine Corps published its seminal *Tentative Manual for Landing Operations*, upgraded as a Navy Fleet Training Publication in 1938. There is a large literature on the development of joint and U.S. Marine Corps amphibious doctrine during the inter-war period. See especially Kenneth J. Clifford, *Amphibious Warfare Development in Britain and America from 1920-1940* (Laurens NY: Edgewood, 1983); Allan R. Millett, "Assault from the Sea: The Development of Amphibious Warfare Between the Wars," in *Readings in American Naval Heritage*, ed. Department of History, United States Naval Academy (New York: American Heritage Custom Publishing, 1997), 145-77; and Barry P. Messina, *Development of U.S. Joint and Amphibious Doctrine, 1898-1945*, CRM 94-103 (Alexandria VA: Center for Naval Analyses, September 1994); 27-43.

[661] The first full amphibious assault exercise of the new doctrine took place at Culebra in 1935, with Fleet Landing Exercise (FLEX) One. FLEXes were repeated every year through 1941. Marine exercises dovetailed with the Navy's Fleet Problems, and the Marine Corps schools at Quantico performed gaming, education and concept-development functions for the Marine Corps similar to those of the Naval War College for the Navy. See General Holland M. Smith, "Training, Experiment, Six Fleet Landing Exercises - 1934-1941," chap. in *The Development of Amphibious Tactics in the U.S. Navy* (Washington DC: History and Museums Division, Headquarters, U.S. Marine Corps, 1992), 25-29.

[662] The interwar Marine Corps numbered about 20,000 officers and men - about double its maximum pre-World War I strength. See *Department of Defense Selected Manpower Statistics, Fiscal Year 2000*, 46.

[663] On the Navy's failure to anticipate the German submarine campaign, see Eliot Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War* (New York: The Free Press, 1990).

[664] Much of the work on sonar and radar was the product of the new Naval Research Laboratory (NRL), formally commissioned in 1923. See Taylor, *The First Twenty-Five Years of the Naval Research Laboratory* (Washington DC: Department of the Navy, 1948); Allison, *New Eye for the Navy: The Origin of Radar at the Naval Research Laboratory*; and Gebhard, *Evolution of Naval Radio-Electronics*. See also Howeth, *History of Communications-Electronics*, 443-54; and Alan Beyerchen, "From Radio to

Radar: Interwar Military Adaptation to Technological Change in Germany, the United Kingdom, and the United States," in *Military Innovation in the Interwar Period*, eds. Murray and Millett, 265-99.

1937-1941 innovations

[665] In 1937, the seaplanes and their tenders were once again made elements of the Scouting Force. On the introduction and subsequent career of the Catalina, see Roscoe Creed, *PBY: The Catalina Flying Boat* (Annapolis MD: Naval Institute Press, 1985).

[666] Catalinas were later used during the war as strike aircraft in the Philippines, at Midway, and in the Solomons. The Catalina proved too slow and too lightly armed to serve as a day bomber, however, although it proved useful as a strike bomber at night. On the use of seaplanes as a strike force, see Creed, *PBY*; Hone, Friedman, and Mandeles, *American & British Aircraft Development*, 59-60, 102-103, 140; Fahey, *The Ships and Aircraft of the United States Fleet: 1939 First Edition*, 29 & 34; and idem, *The Ships and Aircraft of the United States Fleet: Two-Ocean Fleet (1941) Edition* (reprint edn.) (Annapolis MD: Naval Institute Press, 1976), 30.

[667] On the turnover of the Army Air Corps's tiny blimp force to the Navy, see Grossnick, *Kite Balloons to Airships*, 35. Earlier in the interwar period, the Army Air Corps had deployed the largest lighter-than-air fleet in the world.

[668] Nevertheless, at the end of 1941 the U.S. Navy still had no specialized amphibious ships. On the new experimental landing craft, see Lieutenant Colonel Kenneth J. Clifford, USMCR, *Progress and Purpose: A Developmental History of the United States Marine Corps, 1900-1970* (Washington DC: History and Museums Division, Headquarters, United States Marine Corps, 1973), 48-57; Henry I. Shaw, Jr., *Opening Moves: Marines Gear up for W*ar (Washington DC: U.S. Government Printing Office, 1992); Jerry E. Strahan, *Andrew Jackson Higgins and the Boats that Won World War II* (Baton Rouge LA: Louisiana State University Press, 1994); Major Alfred Dunlap Bailey, USMC (Retired), *Alligators, Buffaloes and Bushmasters: The History of the Development of the LVT Through World War II* (Washington DC: History and Museums Division, Headquarters U.S. Marine Corps, 1986); and Vice Admiral George C. Dyer (Retired), "1941 Naval Organization, Doctrine and Landing Craft Developments for Amphibious War," chap. in *The Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*, vol. 1 (Washington DC: U.S. Government Printing Office, 1972), 201-27.

[669] On underway refueling innovations of the late 1930s, see Wildenberg, *Grey Steel and Black Oil*; and Vice Admiral George C. Dyer, *Naval Logistics* (Annapolis MD: Naval Institute Press, 1960), 128.

[670] Early U.S. Navy small-scale experiments in radio echo-ranging occurred throughout the interwar period. The Navy's development of radar for shipboard use quickened, however, during the late 1930s. The responsibility fell to the Naval Research Laboratory, backed up by private industry. The first radars at sea were tested in the 1939 Fleet Problem, on board the battleships *New York* and *Texas*. The first production models were delivered to the fleet in 1940. On the development of U.S. Navy radar at sea, see Allison, *New Eye for the Navy*; Gebhard, *Evolution of Naval Radio-Electronics*, 171-221; Captain Donald Macintyre, Royal Navy (Retired), "Shipborne Radar," Naval Institute *Proceedings* 93 (September 1967), 70-83; Louis Brown, *A Radar History of World War II: Technical and Military Imperatives* (Bristol: Institute of Physics Publishing, 1999), 67-68, 172-3, 237, 247; and Friedman, *Naval Radar*, 83, 145, 172.

[671] The Fido acoustic torpedo began development in 1940 and was in the fleet killing German submarines by May 1943. Development of the VT (proximity) fuse began in the summer of 1940 and the first Japanese aircraft was shot down with one in January 1943. (The VT fuse was activated by radio waves generated by a miniature radio transmitter set in the shell and bouncing off the target aircraft). On the acoustic torpedo, see Norman Polmar, "Torpedoes that Think," *MHQ*, 108. On the VT fuse, see "Radio Proximity (VT) Fuses," (Washington DC: Naval Historical Center website),

http://www.history.navy.mil/faqs/faq96-1.htm; and Ralph B. Baldwin, *The Deadly Fuse: The Secret Weapon of World War II* (San Rafael CA: Presidio Press, 1980). On HF/DF, see Friedman, *U.S. Naval Weapons*, 128; and Gebhard, *Evolution of Naval Radio-Electronics*, 263-298.

[672] In 1940, the British provided the U.S. Navy with technology to jump-start American development of a new generation of sea mines for offensive mining operations. See Duncan, *America's Use of Sea Mines*, 118-27. Actual offensive naval operations with these new mines would not occur until 1942.

[673] On the inter-relationships between submarine procurement strategy and planned employment strategy during this period, see J.E. Talbott, "Weapons Development, War Planning and Policy: The US Navy and the Submarine, 1917-1941," *Naval War College Review* 37 (May-June 1984), 53-71.

[674] On early U.S. Navy research on nuclear propulsion for submarines, see Joseph-James Ahern, "The United States Navy's Early Atomic Energy Research, 1939-46," *International Journal of Naval History* 1 (April 2002), on-line.

1941-1943 innovations

[675] For an overview of U.S. Navy technological innovations introduced into the fleet during the war, see Edward M. MacCutcheon, "World War II Development and Expansion," in *Naval Engineering and American Seapower*, 207-55.

[676] On the origins of CIC, see Friedman, *US Naval Weapons*, 91-2.

[677] While it was not immediately apparent, the escort carriers would prove crucial to two innovative task force concepts introduced later in the war, for close air support and anti-submarine hunter-killer operations.

[678] Ahead-thrown weapons like Hedgehog enabled anti-submarine destroyer attacks to occur while the destroyer still had sonar contact with the submarine, unlike side- and stern-dropped depth charges. On the wartime development and effectiveness of Hedgehog, see Friedman, *US Naval Weapons*, 124-5.

[679] On the wartime development of bombardment rockets, see Friedman, *US Naval Weapons*, 232-3.

[680] Sonobuoys would continue in the experimental stage until the 1950s. On the development of sonobuoys, see Friedman, *US Naval Weapons*, 139-140. .

[681] There is a large recent literature on the innovations introduced into U.S. Navy intelligence operations during World War II, especially regarding code breaking and exploitation. See especially Stephen Budiansky, *Battle of Wits: The Complete Story of Codebreaking in World War II* (New York: Free Press, 2000); Alan Harris Bath, *Tracking the Axis Enemy: The Triumph of Anglo-American Intelligence* (Lawrence KS: University Press of Kansas, 1998); and John Prados, *Combined Fleet Decoded: The Secret History of American Intelligence and the Japanese Navy in World War II* (New York: Random House, 1995).

[682] On the American adaptation of British amphibious ship designs, see Colonel Don P. Wycoff, USMC (Retired), "Let There Be Built Great Ships . . . ," Naval Institute *Proceedings* 108 (November 1982), 51-57. The first U.S. Navy employment of an amphibious command ship (AGC) in the war was in July 1943 at Sicily, when Rear Admiral Alan Kirk and Lieutenant General Omar Bradley rode on *Ancon*. The U.S. Navy did not publicly acknowledge the existence of the AGCs until after the war ended. On the AGCs, see Norman Polmar and John J. Patrick, "Amphibious Command Ships: Past, Present and Future" Parts 1 and 2 in *Warship*: Volume VI (Annapolis MD: Naval Institute Press, 1982), 222-231 and 256-265.

[683] In March and April 1942, Amphibious Forces within the Atlantic and Pacific Fleets were created, and in time all amphibious units within the two Fleets were assigned to them. At this time -- four to five months prior to the landings on Guadalcanal -- there were only 18 Navy amphibious ships in the Atlantic and 11 in the Pacific, although the Army deployed its own amphibious vessels. Despite some opposition within and without the Navy, in March 1943, the Army and Navy agreed that at-sea amphibious operations, ships and craft were Navy responsibilities. The Army retained responsibility, however, for troopship point-to-point sealift for its soldiers and airmen. While there is an enormous library of work on

the development of the Marine Corps (and Army) side of American amphibious warfare, there has been much less written on the development of U.S. *Navy* amphibious warfare. On the invention of the Navy amphibious warfare type commands and the designation of amphibious ships and craft as a distinctive category of naval combat vessel, see Vice Admiral George C. Dyer (Retired), "Naval Amphibious Landmarks," Naval Institute *Proceedings* 92 (August 1966), 50-60; and idem, "1941 Naval Organization, Doctrine and Landing Craft Developments for Amphibious War," chap. in *The Amphibians Came to Conquer*, 201-27. See also Atwater, "United States Army and Navy Development of Joint Landing Operations"

[684] By war's end, the Seabees had constructed some 400 advanced bases in Pacific, Atlantic and European theaters, and earned a place in the permanent peacetime as well as wartime force structure of the U.S. Navy. See Transano, *History of the Seabees*.

[685] On the first female line officers, see Ebbert and Hall, "The Navy's First Women Officers," chap. in *Crossed Currents*, 39-56.

[686] On the origins of the Underwater Demolition Teams (UDTs) and related units, see Orr Kelly*, Brave Men - Dark Waters: The Untold Story of the Navy SEALS* (Novato CA: Presidio Press, 1992).

1943-19 innovations

[687] The first employment of a new fast carrier task force in strike operations was a three-carrier raid on Marcus Island in the Central Pacific at the end of August 1943. The first major operation combining fast carrier strikes and amphibious assault operations was at Tarawa in the Gilberts in November 1943. The pioneer escort carrier ASW group - *Bogue* and four destroyers - deployed in support of its initial North Atlantic convoy in March 1943. In July 1943, a group centered on *Sante*e left its convoy to attack a German submarine "wolf pack" south of the Azores, in the first employment of an escort group in independent offensive anti-submarine operations. On the development of the fast carrier task force, see Clark G. Reynolds, *The Fast Carriers: The Forging of an Air Navy* (New York: McGraw-Hill Book Company, 1968). On the origins of the close air support task force built around escort carriers, during the 1943 Aleutians campaign, see Hill Goodspeed, "Doyle's Dauntless Dory: USS *Nassau* and the Evolution of Carrier-based Close Air Support", in *New Interpretations In Naval History: Selected Papers from the Fourteenth Naval History Symposium*, eds. Randy Carol Balano and Craig L. Symonds, (Annapolis MD: Naval Institute Press, 2001), 217-250.

[688] On 2 July 1945, the Composite Task Force, Atlantic Fleet (Task Force 69) - consisting of a variety of combatants, aircraft and drones - was formed at Casco Bay, Maine, under Vice Admiral Willis A. Lee. Its mission was to test defense concepts against the kamikazes that had been developed in a newly formed office set up on the COMINCH staff in Washington for the purpose - the Special Defense Section headed by Captain Arleigh Burke, newly returned to headquarters from the Pacific. From this organization is descended the Operational Test and Evaluation Force (OPTEVFOR) which, since 1959, has developed innovative tactics for the employment of new Navy equipment and systems. On the Navy's scramble to come up with effective defenses against the kamikazes, see Jeffrey G. Barlow, "The U.S. Navy's Fight against the Kamikazes," in *New Interpretations in Naval History: Selected Papers from the Tenth Naval History Symposium*, eds. Sweetman et al. 398-418. On problems in Army Air Forces support for Navy efforts, see Edward J. Marolda, "Service Differences Over the Japanese Aerial Threat at Okinawa," *Pull Together* 35 (Fall/Winter 1996), 3-7. On OPTEVFOR, see "COMOPTEVFOR: Historical Summary," on-line at http://www.cotf.navy.mil/hist_sum.htm.

[689] On the first helicopters, see Robert M. Browning, Jr., "The Eyes and Ears of the Convoy: Development of the Helicopter as an Anti-Submarine Weapon," (Washington DC: U.S. Coast Guard Historian's Office, 1993). The first use of a Bat missile in combat was in April 1945, when U.S. Navy

land-based Privateer aircraft launched a pair against shipping off Borneo. See Wayne Mutza, *Lockheed P2V Neptune: An Illustrated History* (Atglen PA: Schiffer Military/Aviation History, 1996) 138.
[690] With the demise of the Japanese Navy and the shift to U.S. Navy attacks on shore targets, fleet logistics demands had grown. Admiral Nimitz's staff developed the "Burton rig" for replenishment at sea, and in February 1945, off Iwo Jima, the first ammunition was transferred at sea underway. Underway re-provisioning began the following month. See Marvin O. Miller, "Stand By for Shotline", Naval Institute *Proceedings* 111 (April 1985), 75-79; and Wildenberg, *Grey Steel and Black Oil*, 204-7. On the entire U.S. Navy sea-based logistics effort in the Pacific during the war, see Worrall R. Carter, *Beans, Bullets and Black Oil: The Story of Fleet Logistics Afloat in the Pacific During World War II* (Washington DC: U.S. Government Printing Office, 1953).

1945-47 innovations

[691] For an overview of U.S. Navy technological developments during this period, see Robert L. Scheina, "Search for a Mission (1945-1950)," in *Naval Engineering and American Seapower*, 259-273.
[692] The 1946 joint exercise testing nuclear weapons effects, run by specially-constituted Joint Task Force One under Vice Admiral W.H.P. Blandy, was Operation "Crossroads." See Jonathan M. Weisgall, *Operation Crossroads: The Atomic Tests at Bikini Atoll* (Annapolis MD: Naval Institute Press, 1994). While often touted in the literature as the *first* joint exercise, it was in fact arguably the *last* - at least for a long while. Joint Task Force One and Operation "Crossroads" were in fact just the latest in a long line of coordinated Army-Navy exercises that began with Rear Admiral Luce off Newport in the 1880s and continued through the interwar Joint Grand Exercises and the 1941-2 joint amphibious training exercises.
[693] The Office of Naval Research (ONR) was the first (and for several years the only) federal agency to support a broad range of scientific work in American universities after World War II. As such, it helped formulate America's postwar science policies. The National Science Foundation was not established until 1950. On the founding of ONR, see Harvey M. Sapolsky, *Science and the Navy: The History of the Office of Naval Research* (Princeton NJ: Princeton University Press, 1990).
[694] Having rapidly exploited captured German equipment, documents and personnel, the Navy immediately commenced, in 1946, the Greater Underwater Propulsive Power (GUPPY) program to modernize its World War II fleet boats. On the early postwar innovations in U.S. Navy submarines, see Norman Friedman, "The Postwar Attack Submarine," chap. in *U.S. Submarines Since 1945* (Annapolis MD: Naval Institute Press, 1995); and Gary E. Weir, *Forged in War: The Naval-Industrial Complex and American Submarine Construction, 1940-1961* (Washington DC: Naval Historical Center, 1993). For an overview of U.S. Navy exploitation of Nazi German Navy technology, see COMO H.A. Schade, "German Wartime Technical Developments," *Journal of the American Society of Naval Engineers* 59 (February 1947): 77-97. On the exploitation of German atomic energy research, see RADM Albert G. Mumma, "The Alsos Mission," *Naval History* 3 (Summer 1989): 51-53. On the exploitation of German submarine design, see Dick L. Bloomquist, "Air-Independent Submarine Propulsion: A Historical Perspective from Walter to Stirling," *Submarine Review* (July 1993), 76-77; Antony Preston, *Submarines: The History and Evolution of Underwater Fighting Vessels* (London: Octopus, 1975), 105-106; Eberhard Roessler, *The U-Boat: The Evolution and Technical History of German Submarines* (Annapolis MD: Naval Institute Press, 1981), 283; Erich Topp, *The Odyssey of a U-Boat Commander* (Westport CT: Praeger, 1992),116-117; and Gary E. Weir, *Forged in War: The Naval-Industrial Complex and American Submarine Construction, 1940-1961* (Washington DC: U.S. Naval Historical Center, 1993), 71-78 and passim. On the exploitation of German submarine sonar, see RADM Roy S. Benson Oral History, U.S. Naval Institute, 1984, 360; Lee E. Holt "The German Use of Sonic Listening," *Journal of the Acoustical Society of America* 19 (July 1947), 678-681; and Weir, *Forged in War*, 130. On jet propulsion, see Robert Esposito, "The Navy's P-80/TO-1 Shooting Stars: Part One: Early Days of Naval Jet Aviation," *The Hook* 19 (Spring 1991), 21-22. On guided missiles, see Robert L. Scheina,

"Search for a Mission (1945-1950)," and Willis C. Barnes, "Korea and Vietnam (1950-1972)," in *Naval Engineering and American Sea Power*, ed. King, 264 and 289; also Isenberg, *Shield of the Republic, Volume I*, 656-659, and Weir, *Forged in War,* 227-231.

[695] See Lieutenant Commander Leigh Armistead, "The Development of Airborne Early Warning (AEW) Aircraft", chap. in *AWACS and Hawkeyes: The Complete History of Airborne Early Warning Aircraft* (St. Paul MN: MBI Publishing Company, 2002), 1-19; Lieutenant Will Dossell, "History of AEW," *The Hook* 11(Summer 1983) 24; and Edward C. Whitman, "Cold War Curiosities: U.S. Radar Picket Submarines," *Undersea Warfare* 4 (Winter/Spring 2002), 19.

1947-50 innovations

[696] In 1947, the Army Ordnance Submarine Mine Laboratory was transferred to the Naval Ordnance Laboratory at White Oak MD. In 1949, the last Army coastal artillery guns were scrapped and the Army transferred its mine planters and all underwater mine development, equipment, and duties to the Navy. In 1950 the Army abolished its Coast Artillery branch and coastal defense organizations. The Navy continued to develop and deploy underwater controlled minefields for less than a decade, before abandoning the concept.

[697] The Military Sea Transportation Service (MSTS) was created in October 1949 to be the Defense Department's sole sealift agency. MSTS formally took over the 71 ocean-going vessels of the Army, and the Water Transport Service Division of the Army's Transportation Corps. Army ships owned by the Maritime Commission were transferred on a loan basis. 90 other ships serving Army commands overseas were transferred by June 1950. On the creation and subsequent history of MSTS, see "Born of Many Parents: 1949-1979", *Sealift* 30 (October 1979), 7-19+

[698] On the creation of MATS, see Roger D. Launius, "Military Unification's Predecessor: The Air Force and Navy Strategic Airlift Merger of 1948", *Air Power History* (Spring 1992), 22-33. Two Navy squadrons deployed from the Pacific to Europe under MATS during its first major operation, the Berlin Airlift of 1948. Navy participation in MATS deployments continued until 1967.

[699] At the same time, the United States was rapidly divesting itself of its huge wartime merchant marine. Unlike the years following World War I, when the United States sought to retain its wartime shipping edge over other nations, the government now was concerned with getting European shipping powers like Britain, Norway, Denmark and France back on their economic feet. Accordingly, a 1946 Merchant Marine Sales Act made surplus ships readily available to both American and allied owners. By 1948, the U.S. share of world shipping had been reduced from 60 percent at war's end to 36 percent. See Gibson and Donovan, *Abandoned Ocean*, 170-1.

[700] In May 1948, five Marine Experimental Helicopter Squadron helicopters lifted 66 Marines from the deck of the carrier *Palau* at sea to Camp Lejeune.

[701] On the Navy nuclear weapons program, see Vice Admiral Jerry Miller, *Nuclear Weapons and Aircraft Carriers: How the Bomb Saved Naval Aviation* (Washington DC: Smithsonian Institution Press, 2001); and Al Christman, *Target Hiroshima: Deak Parsons and the Creation of the Atomic Bomb* (Annapolis MD: Naval Institute Press, 1998)

[702] There is a large literature on the innovative development of nuclear propulsion by the U.S. Navy during this period and later, focusing around the ideas and methods of Admiral Hyman Rickover. In 1948, work began on constructing a submarine reactor. In 1950, President Truman authorized construction of the first U.S. Navy nuclear-powered submarine. See especially Davis, "Case No. 2: The Development of Nuclear Propulsion Units," chap. in *The Politics of Innovation,* 23-29; Francis Duncan, *Rickover and the Nuclear Navy: The Discipline of Technology* (Annapolis MD: Naval Institute Press, 1989); Norman Polmar and Thomas B. Allen, *Rickover: Controversy and Genius -- A Biography* (New York: Simon and Schuster, 1982); and Richard G. Hewlett and Francis Duncan, *Nuclear Navy, 1946-1962* (Chicago: University of Chicago Press, 1974).

[703] On the introduction of jet aircraft into the fleet, see E.T. Wooldridge, ed. *Into the Jet Age: Conflict and Change in Naval Aviation, 1945-1975*, (Annapolis MD: Naval Institute Press, 1995).
[704] By 1947, for example, the Navy had fired missiles from submarines and surface ships, and begun development of Regulus cruise missiles. On Navy guided missile experimentation in the late 1940s, see Friedman, *US Naval Weapons*, 149-150.
[705] On the new radar picket submarines, see Whitman, "Cold War Curiosities," 20
[706] On the demise of battleship and cruiser observation aircraft, see Larkins, *Battleship and Cruiser Aircraft of the United States Navy*, 17.

1950-1972 innovations

[707] This was also a period when the Navy jettisoned systems no longer useful - another type of innovation. Seaplanes, seaplane tenders and blimps passed from the Navy inventory during this period. Radar picket ships, communications relay ship, intelligence-gathering ships, early submarine-launched cruise missiles, and torpedo-carrying drone anti-submarine helicopters (DASH) - early unmanned aerial vehicles (UAVs) - came and went. DASH was replaced on cruisers and destroyers in the 1960s by manned Light Airborne Multi-purpose System (LAMPS) helicopters. On DASH, see Friedman, *US Naval Weapons*, 128-9. On U.S. Navy technical innovations during the early and mid-Cold War, see Willis C. Barnes, "Korea and Vietnam (1950-1972), in *Naval Engineering and American Seapower*, ed. King, 277-317; and Carlisle, "The Cold War Era", chap. in *Navy RDT&E Planning in an Age of Transition*, 11-26. On the demise of the U.S. Navy's blimps, which last flew operationally in 1961, see Althoff, *Sky Ships*; and Grossnick, *Kite Balloons to Airships*.
[708] On the innovative development of helicopter minesweeping, see Melia, *"Damn the Torpedoes,"* 85 and ff. On missile development, see Friedman, *US Naval Weapons*, 148-159. On the development of the innovative submarine-launched strategic missile system, see Harvey M. Sapolsky, *The Polaris System Development: Bureaucratic and Programmatic Success in Government* (Cambridge MA: Harvard University Press, 1972). On innovations in the surface combatant force during a period in which they were overshadowed by developments in submarines and carrier aviation, especially regarding missiles, see Malcolm Muir, Jr., *Black Shoes and Blue Water: Surface Warfare in the United States Navy, 1945-1975* (Washington DC: Naval Historical Center, 1996). On the development of the Naval Tactical Data System (NTDS) - another innovation with British roots - and its successors, see ibid., 143-145; Gebhard, *Evolution of Naval Radio-Electronics and Contributions of the Naval Research Laboratory*, 377-97; and David L. Boslaugh, *When Computers Went to Sea: The Digitization of the United States Navy* (Los Alamitos CA: IEEE Computer Society and the Society of Naval Architects and Marine Engineers, 1999). On the innovations in underway replenishment - especially the development of the fast multi-product replenishment ship, the use of helicopters for "vertical replenishment" (VERTREP), and the creation of new STREAM cargo transfer systems -- see Miller, "Standby for Shotline;" Miller et al. *Underway Replenishment of Naval Ships*; and Wildenberg, "The Fast Combat-support Ship and Improved Techniques for Transfer at Sea," chap. in *Gray Steel and Black Oil*, 227-237, and 210-216. The Navy - especially the Naval Research Laboratory - was very active in space research and innovation in the 1950s, especially in rocketry. Unfortunately the Navy's Vanguard missile program turned out to be a failure. The Navy's first operational communications satellites appeared in the 1960s. In the mid-1960s the Navy operated the world's first operational worldwide satellite communications system, with six ship and four shore installations. For this and other milestones in U.S. Navy communications innovation, see Gebhard, *Evolution of Naval Radio-Electronics and Contributions of the Naval Research Laboratory*, 114-136 and *passim*. On Navy space research and innovation, see Robert K. Geiger, "History of the Navy in Space," in *Naval Tactical Command and Control*, ed. Vice Admiral Gordon Nagler, Retired, (Washington DC: AFCEA International Press, 1984), 181-7; Constance McLaughlin Green and Milton Lomask, *Vanguard: A History* (Washington DC: National Aeronautics and Space Administration, 1970); and John P. Hagen,

"The Viking and the Vanguard," in *The History of Rocket Technology: Essays on Research, Development and Utility*, ed. Eugene M. Emme (Detroit MI: Wayne State University Press, 1964),

[709] On the quick U.S. Navy adoption of the innovative angled deck, see Commander Harold L. Buell, "The Angled Deck Concept -- Savior of the Tailhook Navy," *The Hook* 15 (Fall 1987), 13-23. On adoption of the steam catapult, see Rear Admiral D.K. Weitzenfeld, "Colin Mitchell's Steam Catapult: The Heart of Modern Aircraft Carriers", *Wings of Gold* 10 (Summer 1985) 27-31. On the mirror landing system, see VADM Donald D. Engen, "'Roger Ball' -- How it Started," *The Hook* 15 (Fall 1987), 24. Other innovations borrowed from the British during this period included nylon crash barriers, ejection seats, "probe and drogue" air refueling, fin stabilizers, air cushion vehicles, and gas turbine engines.

[710] The SEALs sprang from the Navy's Underwater Demolition Team (UDT) "frogman" community to meet a national requirement for an innovative Navy counter-insurgency force. On the origins of the SEALs - see Marolda and Fitzgerald, *The United States Navy and the Vietnam Conflict*, vol. 2, 102-104, 111-117, 120-122, 189-192 and 208-218.

[711] On U.S. Navy innovations in riverine warfare during the Vietnam war, see Thomas J. Cutler, *Brown Water, Black Berets: Coastal and Riverine Warfare in Vietnam* (Annapolis MD: Naval Institute Press, 2000); and Norman Friedman, *U.S. Small Combatants: Including PT-Boats, Subchasers, and the Brown-Water Navy* (Annapolis MD: Naval Institute Press, 1987).

[712] Starting in the 1960s, the Navy has used dolphins and sea lions in innovative ways to perform underwater surveillance, detection and recovery operations. See "Brief History of the Navy's Marine Mammal Program," chap. in *Annotated Bibliography of Publications from the U.S. Navy's Marine Mammal Program*, Technical Document 627, Revision D (San Diego CA: Space and Naval Warfare Systems Center, May 1998).

[713] On the Incidents at Sea Agreement, see David F. Winkler, *Cold War at Sea: High-Seas Confrontation between the United States and the Soviet Union* (Annapolis MD: Naval Institute Press, 2000)

1972-1979 innovations

[714] On the development of Harpoon throughout the 1970s, see Friedman, *US Naval Weapons*, 211-212, 230-231.

[715] On the development of Tomahawk, see Gregory Engel, "Cruise Missiles and the Tomahawk," in *The Politics of Naval Innovation*, ed. Hayes and Smith, 16-42; and Friedman, *US Naval Weapons*, 225-6. On Aegis, see Thomas C. Hone, Douglas V. Smith, and Roger C. Easton, Jr., "Aegis -- Evolutionary or Revolutionary Technology," in ibid., 43-74.

[716] The elements of OSIS included Radio Direction Finding (RDF), underwater sound systems (SOSUS), satellites, data analysis centers, and communications networks. See Vice Admiral Samuel L. Gravely, Jr., "The Ocean Surveillance Information System," in *Naval Tactical Command and Control*, ed. Gordon R. Nagler, (Washington DC: AFCEA International Press, c1984-5), 138-147.

[717] The Carrier Battle Group (CVBG) and Composite Warfare Commander (CWC) concepts derived in large part from decisions in the 1960s to drop dedicated anti-submarine warfare carriers (CVSs) from the Navy inventory. The CVBG, with its carrier-based SH-3 Sea King and new S-3A Viking aircraft, inherited much of the capability and some of the duties of the anti-submarine warfare carrier task forces (as did the shore-based P-3C Orion force). On the development of the Carrier Battle Group and Composite Warfare Commander (CWC) concepts, see Pierce, "Disguising Innovation," 255-271. On CWC, see Captain Peter J. Doerr, "CWC Revisited," Naval Institute *Proceedings* 112 (April 1986), 39-43; and Captain Robert Carney Powers, "Commanding the Offense," Naval Institute *Proceedings* 111 October 1985), 59-64. On the 1960s decisions to drop the CVSs, see Floyd D. Kennedy, Jr., "David Lamar McDonald, 1 August 1963-1 August 1967," in *The Chiefs of Naval Operations*, ed. Love, 343.

[718] On the first U.S. Navy women to go to sea, see Ebbert and Hall, "Women at Sea," chap. in *Crossed Currents*, 215-40; and "Women in the U.S. Navy: Historic Documents," Naval Historical Center website: http://www.history.navy.mil.mil/faqs48-3g.htm

1979-1990 innovations

[719] For an overview of technological innovation during the 1980s, see John R. Baylis, "The Six-Hundred Ship Navy and Merchant Marine Doldrums," in *Naval Engineering and American Seapower*, 361-81.
[720] Also, the Naval War College took giant steps forward in incubating naval strategic thought and in global war-gaming. The Naval Postgraduate School developed a new National Security Affairs curriculum as well. On the Naval War College, see Lieutenant Colonel Bud Hay USMC (Retired) and Bob Gile, *Global War Game: The First Five Years*, Newport Paper #4 (Newport RI: Naval War College, June 1993); Adam B. Siegel, *A Brave New Curriculum for a Brave New World?* Professional Paper 499 (Alexandria VA: Center for Naval Analyses, March 1991); Peter P. Perla, "Wargaming and the Naval War College," chap. in *The Art of Wargaming: A Guide for Professionals and Hobbyists* (Annapolis MD: Naval Institute Press, 1990), 96-103; Captain Howard F. Burdick, Jr. "Sons of the Prophet: A View of the Naval War College Faculty," *Naval War College Review* 39 (May-June 1986), 81-89; Captain J. S. Hurlburt (Retired), "War Gaming at the Naval War College, 1969-1989," *Naval War College Review* 42 (Summer 1989), 46-51; Robert J. Murray, "A War-fighting Perspective," Naval Institute *Proceedings* 109 (October 1983), 66-81); and Admiral James D. Watkins, "This is Your Ticket to Compete," *Naval War College Review* 35 (November-December 1982), 4-7. On the Naval Postgraduate School, see Michael R. Weiss, "The Education and Development of Strategic Planners in the Navy," (Monterey CA: U.S. Naval Postgraduate School, December 1990), 30-1.
[721]The CNO Strategic Studies Group (SSG) was established at the Naval War College in 1981 by CNO Admiral Thomas Hayward, under the initial direction of Robert J. Murray, a former Under Secretary of the Navy. Designed to "make captains of ships into captains of war," the SSG program took a dozen or so front-running senior commanders and junior captains and immersed them for a year in the study of strategy and the solving of particular strategic, operational and tactical problems. This experience in turn helped trigger innovative approaches to other problems by some of the program's graduates later in their naval careers. Examples include the innovations advocated in the 1990s by Admiral William Owens and Vice Admiral Arthur Cebrowski, both alumni of the first SSG. On the SSG, see Secretary of the Navy John F. Lehman, Jr., "Thinking About Strategy: Maritime Strategy and the Strategic Studies Group," *Shipmate* 45 (April 1982), 18-20; Murray, "War-fighting Perspective;" and Hattendorf, "Evolution of the Maritime Strategy."

1990-01 innovations

[722] Prior to the Gulf War of 1990-1991, Navy units in joint operations had normally operated more or less autonomously, in support of elements of other services if needed. During and after that war - in which air strike operations were central - this posture operational aloofness became no longer possible for the Navy to maintain. Henceforth, naval forces at sea - especially carrier aviation - would become increasingly subject to joint functional command structures, especially the normally-Air Force dominated Joint Force Air Component Commander (JFACC). On the transformational changes in naval and joint communications and data links during the 1990s, see Admiral Archie Clemins (Retired), "NMCI best hope for spreading digital revolution," *Navy Times* (January 7, 2002), 46.
[723] By 2001, all forward deployed Navy strike fighters were capable of delivering precision guided munitions; all forward deployed guided missile cruisers and destroyers were equipped with the Aegis anti-air system; and all deployed destroyers, guided missile destroyers and attack submarines (and most deployed guided missile cruisers) were capable of firing Tomahawk cruise missiles.
[724] For a discussion of how video-teleconferencing changed Navy command and control, see Admiral Paul D. Miller, *End of Tour Oral History Interview* (Norfolk VA: Headquarters, Commander in Chief, U.S. Atlantic Command, Office of the Command Historian, December 1997), 11-12.
[725] The command was created in large part to foster naval contributions to joint doctrine in the aftermath of Operation Desert Storm. Its creation was announced as part of the new naval strategic concept, " . . .

From the Sea." Viewed with suspicion by normally doctrine-averse fleet operators, its contribution to integrating the Navy better into joint operations proved small, while the fleets themselves forged ahead with new joint initiatives of their own.

[726] On the Fleet Battle Experiments (FBEs) and U.S. Navy innovation efforts in the 1990s generally, see *Military Transformation: Navy Efforts Should Be More Integrated and Focused*, GAO-01-853 (Washington DC: U.S. General Accounting Office, August 2001).

[727] On the new Strategic Studies Group charter, see "Chief of Naval Operations Strategic Studies Group: History," website http://www.nwc.navy.mil/ssg/ssghist.htm

[728] For the two most widely-debated approaches to alternative naval force configurations, see Admiral William A. Owens, "Operations", chap. in *High Seas: The Naval Passage to an Uncharted World* (Annapolis MD: Naval Institute Press, 1995), 76-118; and Admiral Paul David Miller, Both Swords & Plowshares: Military Roles in the 1990s (Cambridge MA: Institute for Foreign Policy Analysis, 1992), 27-31. See also idem, "The Military After Next: Shaping U.S. Armed Forces for the Next Century," Naval Institute *Proceedings* 120 (February 1994), 41-44.

[729] In fact, the Navy solidified its doctrine regarding the primacy of the carrier battle group as its basic deployment force package in a detailed formal instruction signed by the Chief of Naval Operations. See OPNAV INSTRUCTION 3501.316, "Policy for Battle Groups," 17 February 1995.

[730] On the immediate U.S. Navy response to the attacks of 11 September, 2001, as directed by joint and Navy component commanders, see Scott C. Truver, "The U.S. Navy in Review," Naval Institute *Proceedings/ Naval Review* 128 (May 2002), 79-82.

9/11/01 innovations

[731] On the immediate deployment of major U.S. Navy forces off-shore, see Admiral Robert Natter, "The Fleet is Ready," and Admiral Thomas Fargo, "Ready for the Campaign Ahead," Naval Institute *Proceedings* 127 (November 2001), 36-8. Admiral Natter deployed U.S. Navy forces as the Commander in Chief of the U.S. Atlantic Fleet, the Navy component of the U.S. Joint Forces Command. Admiral Fargo was the commander in Chief of the U.S. Pacific Fleet, the Navy component of the joint U.S. Pacific Command.

[732] On *Kitty Hawk*'s employment as an Afloat Forward Staging Base (AFSB), see William H. McMichael, "Secret and Silent No More: Now on New Mission, Kitty Hawk Officers Talk About War Role," *Navy Times*, May 27, 2002).

2002 innovations

[733] A series of "Sea Swap" experiments were conducted with Pacific Fleet surface combatants during 2002, aimed at keeping more ships forward and extending ship time in the Persian Gulf, through flying in new ships' crews to replace old ones at forward locations.

[734] On the revival of the state militias, see Girardet, "A Naval National Guard?"; Terry Joyce, "Sept. 11 Attacks Point to Need for a Naval Militia, Local Expert Says," *Charleston* (SC) *Post and Courier* (April 7, 2002); and Rear Admiral T.D. Beard III letter, Naval Institute *Proceedings* 128 (July 2002), 20. For an innovative suggestion to bring back privateering, see Lieutenant Commander David Douglas Winters, U.S. Navy (Retired), "Bring Back the Privateer," Naval Institute *Proceedings* 128 (April 2002), 112.

[735] For the Navy's initial thinking on new force packages as of mid-2002, see "Sea Power 21" and the *Naval Transformation Roadma*p. For a contemporary analysis of some alternative future deployment force packages, see Work, *Challenge of Maritime Transformation.*

[736] This section benefited greatly from a July 2002 e-mail exchange of data and interpretations among the author and over a dozen interlocutors, including George Baer, Jan Breemer, Commander John Dickmann, Henry Gaffney, Wayne Hughes, Michael Markowitz, Michael McDevitt, Captain Kevin Morrisey, Commander Paul Nagy, Albert Nofi, William O'Neil, Patrick Roth, Larry Seaquist, and Rear Admiral James Stavridis

[737] A notable exception was Commodore William Bainbridge's exercising of his squadron during its return from the Mediterranean in 1815, cited by the Robisons as the Navy's first recorded attempt at tactical maneuvers, in their *History of Naval Tactics*, 523.

[738] On the great effectiveness of American individual ship gun drills and aiming practice - from a British point of view - see Padfield, *Guns at Sea*, 137.

[739] Luce's exercises are described in Hattendorf, "Stephen B. Luce", 15; and Hayes and Hattendorf, *Writings of Stephen B. Luce*, 13-15 & 195-199.

[740] On the nature of main U.S. Navy fleet exercises during the interwar period - the more or less annual Fleet Problems conducted from 1923 through 1940 - see Nofi, *Naval Experimentation the Old Fashioned Way* (forthcoming)

[741] On the pernicious effects of the fleet's lack of forward deployment experience, see Hone, "The Fleet That Didn't Deploy."

[742] The Navy sponsored the annual Fleet Landing Exercise (FLEX) series from 1935 through 1941. Recall that the Marine Corps prior to World War II fielded no unit larger than a brigade, and was headed by a Commandant with the rank of major general, while the Chief of the Staff of the Army and the Chief on Naval Operations each wore four stars.

[743] On the down side of the fleet's lack of forward deployment experience, see Hone, "The Fleet That Didn't Deploy."

[744] For a discussion of the nature of U.S. Navy Cold War exercises and their analysis, see Frederick Thompson, "Did We Learn Anything From That Exercise? Could We?," *Naval War College Review* 35 (July-August 1982), 25-37.

[745] As noted earlier, the extensive nature of the Navy's Cold War exercise program in the first half of the 1980s is described and analyzed in detail in Christopher C. Wright's series of "U.S. Naval Operations" articles, Naval Institute *Proceedings*/*Naval Review*, vols. 109-113 (May issues, 1983-1987).

[746] An exception was the decade from the mid-1950s through the mid-1960s, when continental air defense was a responsibility of al the services, and joint air defense exercises off U.S. coasts were common.

[747] Recall that the Marine Corps had now developed as a separate military service, with its Commandant wearing four stars (since World War II) and joining the Joint Chiefs of Staff (since the Korean War). During the 1990s, Marine Corps officers were appointed as unified combatant commanders, Marine components were formed for each combatant command - co-equal with their Navy, Army and Air Force counterparts - and the Commandant moved his office into the Pentagon, adjacent to that of the Secretary of the Navy.

[748] As of the summer of 2002, ten Fleet Battle Experiments (FBEs) had been conducted over the preceding five and a half years - seven by the Second and Third (home) Fleets and one by each of the three forward-deployed fleets.

[749] A possible harbinger of future exercises is "Millennium Challenge 02". This large joint "warfighting experiment" ran from July 24 to August 15, 2002, and involved over 13,5000 U.S. military and civilian participants in live field actions and computer simulations. The experiment had been mandated by an Act of Congress, was directed by the U.S. Joint Forces Command, and included elements of all the U.S. military services, U.S. special operations forces, most combatant commands, and various Department of

Defense and other federal agencies. The experiment took over two years to plan and was intended to focus on "how effects based operations can provide integrating, joint context for conducting rapid and decisive operations in this decade using transformational knowledge and command and control concepts with today's equipment and weapons systems." The Navy dovetailed its Fleet Battle Experiment Juliet (FBE-J) with Millennium Challenge 2002. See "Navy Prepares for participation in Fleet Battle Experiment Juliet and Millennium Challenge 2002," Navy News (Washington DC: Chief of Naval Information, July 15, 2002); and "U.S. Joint Forces Command Sponsors Millennium Challenge 02", News Release No. 363-02 (Washington DC: U.S. Department of Defense, July 12, 2002.

[750] The proposed new U.S. Navy force packages were announced in Clark, "Sea Power 21".

[751] Secretary of Defense Donald Rumsfeld made his statement in congressional testimony on May 21, 2002, then had it widely publicized. "See "Secretary of Defense Quote of the Day," on line at http://www.defenselink.mil/specials/quoteofday/

Deployment strategy and sea basing

[752] To provide more useful context and perspective, we have deliberately chosen a broad definition of sea basing for this discussion - the use of vessels afloat to support other vessels afloat as well as operations ashore. In U.S. naval amphibious operations logistics doctrine, however, the term "sea basing" refers to a much narrower concept - keeping combat service support assets afloat to support amphibious operations and power projection ashore, sending them ashore only as needed. See *Naval Logistics: Naval Doctrine Publication 4* (Washington DC: Department of the Navy, 10 January 1995), 69. The narrower sea basing concept has been the starting point for much twenty-first century Marine Corps thinking on the future of sea basing. Our broader definition and discussion is closer to the images the term brings to mind among U.S. Navy planners.

[753] Sea Basing is one of the three operational capabilities described in Clark, "Sea Power 21" and one of the three "transformational capabilities" described in the *Naval Transformation Roadmap.* The analysis here draws in part from an internal U.S. Navy draft working document: CDR Paul Nagy, *Sea Basing: Its Past, Present and Future* (Washington DC: Office of the Chief of Naval Operations, June 2002)

[754] For a detailed analysis of amphibious operations since 1941, the U.S. Marine Corps's post-Cold War Operational Maneuver from the Sea (OMFTS) concept, and sea basing, see Malkasian, *Charting the Pathway to OMFTS*.

[755] On the post-Cold War U.S. Marine Corps concepts, see *United States Marine Corps Warfighting Concepts for the 21st Century* (Quantico VA: Marine Corps Combat Development Command, 1998).

[756] On the use of converted oil barges in the Gulf as a mobile sea base during Operation "Earnest Will," see David B. Crist, "Joint Special Operations in Support of Earnest Will," *Joint Force Quarterly* (Autumn/Winter 2001-02), 15-22.

[757] On Army and Marine use of Navy LSTs as aviation ships, see Terry M. Love, "Brodie System," *AAHS Journal*, 47 (Summer 2002), 136-40. See also Colonel Patrick N. Delaven, USA (Retired), "USS Brodie," *Army* 52 (April 2002), 61-2; and Edgar F. Raines, Jr., *Eyes of Artillery: The Origins of Modern U.S. Army Aviation in World War II* (Washington DC: Center of Military History, United States Army, 2000), 161-6 and 267-71.

[758] There is a large, if unofficial, literature on the Navy's use of forward sea based intelligence gathering ships. See especially Bamford, *Body of Secrets.*

[759] On the history of U.S. forward basing, see Blaker, *United States Overseas Basing: An Anatomy of the Dilemma* (Westport CT: Praeger, 1990).

[760] For an analysis of forward basing issues at the end of the Cold War, see ibid.

[761] On the Navy's forward logistics support of its warships in the Caribbean during the Quasi-War, see Stanley J. Adamiak, "Benjamin Stoddert and the Quasi-War with France," *Naval History* 13 (January/ February 1999), 34-8.

[762] In 1941, the repair ship *Vulcan* had deployed forward to Iceland, where she performed battle damage repairs on the destroyer *Kearny*, torpedoed by a German submarine in October of that year -- two months before the attack on Pearl Harbor. In 1991, the same repair ship was also on hand at Jeddah, Saudi Arabia -- again forward deployed - to provide repair services to American and coalition warships during Operation "Desert Storm".

[763] On the early AVBs, see Stefan Terzibaschitsch, *Escort Carriers and Aviation Support Ships of the US Navy* (New York: Rutledge Press, 1981), 186-8.

[764] The advanced base in the Marquesas supported the frigate *Essex* during in her commerce-raiding deployment to the Southeast Pacific. The base at Bora Bora, in France's Society Islands, was the first U.S. Navy advanced base set up in the South Pacific during World War II.

[765] On the stores ship *Relief* and the eponymous hospital ship *Relief*, see *Dictionary of American Naval Fighting Ships*, vol. 6 (Washington DC: Naval History Division, Department of the Navy, 1976), 67-8.

[766] On Navy afloat logistics support in the Pacific during World War II, see Carter, *Beans, Bullets and Black Oil.* On the Atlantic experience, see idem and Elmer E. Duvall, *Ships, Salvage and Sinews of War: The Story of Fleet Logistics Afloat in Atlantic and Mediterranean Waters During World War II* (Washington, U.S. Government Printing Office, 1954).

[767] Examples of all services' experiences during World War II are drawn from Dyer*, Naval Logistics*, 117-21.

[768] On forward mobile logistics support during the Korean War, see Field, *History of United States Naval Operations: Korea*, 77-81 and 375-82.

[769] On the revival of forward mobile logistics force sea bases in the Vietnam War, see Vice Admiral Edwin B. Hooper, *Mobility, Support, Endurance; A Story of Naval Operational Logistics in the Vietnam War, 1965-1968* (Washington DC: Naval History Division, Department of the Navy, 1972).

[770] As noted earlier, the reduction in the repair and tender force was driven by their limited and obsolescing repair capabilities, heavy manpower requirements, and large number of alternative shore-based repair facilities, both forward and at home. See Polmar, *Ships and Aircraft of the U.S. Fleet*, 230-233 & 269-271; and *Mustin Oral History*, 128-9.

[771] For an analysis of the role of underway replenishment in the initial conceptualization and deployments of the first combat-credible forward presence fleet - the Sixth Fleet - see Dur, "Sixth Fleet Logistics," app. in "The Sixth Fleet," 144-59.

[772] On the AGCs, see Polmar and Patrick, "Amphibious Command Ships"

[773] On the Navy's use of cruisers as command ships, see Norman Friedman, U*.S. Cruisers: An Illustrated Design History* (Annapolis MD: Naval Institute Press, 1984).

[774] On the early promise of the new LCCs, see Commander A.S. Miller, "USS Mount Whitney (LCC-20), " Naval Institute *Proceedings* 103 (November 1977), 106-8.

[775] Many Navy and Marine Corps officers were critical of the reconfiguration of sea-based amphibious command and transport ships to sea-based fleet command ships. Some questioned the need for commanders at the numbered fleet echelon to direct operations from a sea base at all. See Lieutenant Colonel Kenneth W. Estes, "Flagships for Fleet Commanders?" Naval Institute *Proceedings* 114 (November 1988), 113; Vice Admiral Ray Peet (Retired) and Captain James K. Pernini letters, Naval Institute *Proceedings* 115 (February 1989), 22-3; Colonel Theodore L Gatchell, "TAD for the LCCs?" Naval Institute *Proceedings* 108 (November 1982), 111-13; and Vice Admiral Ray Peet (Retired) and Michael E. Melich, "Fleet Commanders Afloat or Ashore?" Naval Institute *Proceedings* 102 (June 1976), 25-33.

[776] On the reconfiguration of the command ships for joint operations, see, for example, James W. Crawley, "Fleet Flagship has a New Mission, New Skipper," *San Diego Union-Tribune* (June 17 , 1997), B4; and "Pacific JTF", *Joint Force Quarterly* (Winter 1995-96), 128.

[777] On the history and current status of the fleet's command ships as of 2001, see Polmar, "Command Ships," chap. in *Ships and Aircraft of the U.S. Fleet*, 165-70.

[778]For an argument for new afloat joint headquarters ships, see Lieutenant Commander Robert D. Gourley, "Time for a Joint Ship," Naval Institute *Proceedings* (January 1994), 57-62. For a suggestion that the Navy use its two T-AH 19 hospital ships in this role, see Lieutenant Commander Dan Shanower, "Why Hospital Ships Should be our Next Flagships," *Naval Intelligence Professionals Quarterly* 16 (Fall 2000), 3-5.
[779] For an analysis of the historical basis for OMFTS and STOM, see Malkasian, *Charting the Pathway to OMFTS.*
[780] For a complementary - and perhaps competitive - U.S. Army-developed concept that seeks to use innovative new high-speed sealift vessels to deliver combat units to overseas ports and other coastal locations directly from the United States, see Brigadier General Huba Wass de Czege USA (Retired) and Lieutenant Colonel Zbigniew M. Majchrzak USA (Retired), "Enabling Operational Maneuver from Strategic Distances," *Military Review* 82 (May-June 2002), 16-20.
[781] Compare, for example, the section on "Floating Bases' in Dyer, *Naval Logistics*, 122-3.
[782] For an argument for the Mobile Offshore Base (MOB), see Owens, *High Seas*, 162-6.

Observations & conclusions

[783] As previously noted, for individual histories of U.S. Navy forward presence through 2001 in the western Pacific and Mediterranean, see Marolda, "The Far Eastern Presence of the U.S. Navy;" and Papadopoulos, "From the Barbary Wars to Kosovo"
[784] As previously noted, for a history of U.S. Navy forward presence through 2001 in the Indian Ocean and Persian Gulf area, see Winkler, "From Ticonderoga to Fifth Fleet"
[785] As previously noted, for a history of U.S. Navy forward presence through 2001 in Latin American waters, see Roth, "From the Brazil Squadron to USNAVSO"
[786] Figures for 2002 are from Department of the Navy, *Highlights of the Department of the Navy FY 2003 Budget*. Ship force levels for other years are from Naval Historical Center, *U.S. Navy Active Ship Force Levels*. Personnel figures for other years are from Department of Defense, *Selected Manpower Statistics, Fiscal Year 2000.*
[787] Again, to ensure comparability across eras, we are using fleet strength totals as calculated by the Naval Historical Center. The Navy's public figure before Congress for Fiscal Year 2002 was 315 Battle Force ships and 135 Strategic Sealift ships. The official U.S. Navy Naval Vessel Register total showed 307 battle force ships and 150 local defense and miscellaneous support force ships.
[788] For example, the 335-ship Navy of 1937 was manned by 114 thousand officers and men.
[789] The 342-ship Navy of 1917 was manned by 195 thousand officers and men.
[790] 383 thousand officers and enlisted personnel manned a 790-ship Navy in 1941.
[791] The conclusions presented here are only an outline. A more detailed applied naval history study on the Navy and Homeland Defense is currently underway at the Center for Naval Analyses Center for Strategic Studies. Like the present study, that effort is sponsored by the Naval Historical Center and being written in coordination with key Navy staff offices.
[792] On early nineteenth century alignment issues, see especially Symonds, *Navalists and Antinavalists*, 222-224, and 230-231.
[793] For example, as noted earlier, the fast screw frigate *Wampanoag* was commissioned in 1868 with a revolutionary steam-and-sail design. She was conceived of, however, to implement a *planned* wartime employment strategy as a surge commerce raider and commerce raider-destroyer, while the Navy of the era was focused on an *actual* peacetime employment strategy of forward station operations other than war. Navy procurement strategy was quickly brought in line with Navy deployment and actual employment strategies. *Wampanoag* was quickly taken out of service, despite her innovative technology and her suitability for her planned wartime employment.

[794] The U.S. Navy of 1798-1815 surged forward alongside a swarm of commissioned civilian privateers. For an argument for a revival of combat surge privateering, see Winters, "Bring Back the Privateer"
[795] Public advocacy of a Combat Surge deployment strategy was briefly in vogue at the end of the Cold War. For a call for a shift in American national military strategy from forward deployment to surge power projection from the United States, see General George B. Crist, USMC (Retired), "A U.S. Military Strategy for a Changing World," *Strategic Review* 18 (Winter 1990), 16-24. For an argument for a U.S. Navy surge strategy ("on call, rather than on station"), see Captain Gerald G. O'Rourke, "Our Peaceful Navy," Naval Institute *Proceedin*gs 115 (April 1989), 79-83. For a prediction that the future deployment strategy of the Navy would have a significant surge element, see Garrett, Kelso, and Gray, "The Way Ahead."
[796] For an analysis that indicates that "out of the blue" events necessitating immediate responses have *not* occurred in the recent past, however, see H.H. Gaffney, *Warning Time for U.S. Forces' Responses to Situations: A Selective Study*, CIM D0006378.A1/Final (Alexandria VA: Center for Naval Analyses, June 2002).
[797] For an argument for returning to a deployment strategy of more global forward presence and expeditions, see Kenneth J. Hagan, "What Goes Around . . .", Naval Institute *Proceedings/ Naval Review 1992* 118 (May 1992), 88-91. See also related arguments using nineteenth century data in Boot, *The Savage Wars of Peace*; Mead, "The American Foreign Policy Legacy;" and idem, *Special Providence.*
[798] A return to a Navy deployment strategy of "cruising" - but on a grander scale than previously conducted - was advocated in 1998 by the then- Commander in Chief of the Atlantic Fleet. He advocated "infesting the oceans" with "large numbers of relatively inexpensive, slow, simple, lightly manned, self-sufficient, high-endurance ships spread over the oceans in a broad network" on cruises "about five months long, 'round the world,' with adequate liberty and 'show the flag' port calls," augmenting or augmented by forward deployed or surge forces. See Admiral J. Paul Reason with David G. Freymann, *Sailing New Seas* (Newport RI: Naval War College Press, March 1998), 19.
[799] After the Cold War, advocacy for a return to a 1920s-style Navy deployment strategy model was strong in the Office of Net Assessment in the Office of the Secretary of Defense (OSD/NA), and in the Center for Strategic and Budgetary Assessments (CSBA). In a speech at a 2001 CSBA conference on innovation, the Director of OSD/NA, Dr. Andrew Marshall, was reported to have "chided the Navy for the lack of experimental ships in the fleet today, something the fleet made great use of in the 1920s, when it converted warships to serve as nascent aircraft carriers in order to gain an understanding of what changes such weapons might bring to navy strategy, doctrine and tactics". "In 1924, the USS *Langley* entered the fleet for experimentation. We have nothing like that at all," Marshall was quoted as having said. See Robert Holzer, "Top U.S. Military Strategist Faults Navy Innovation," *Defense News* 16 (February 12, 2001), 1 & 20. OSD/NA also sponsored numerous studies on the interwar experience of the U.S. armed forces regarding innovation and experimentation, implying that there was some virtue in adopting at least some of the era's characteristics. See especially Andrew F. Krepinevich, "Military Experimentation: Time to get Serious," *Naval War College Review* 54 (Winter 2001), 76-89. Other products included Hone, Friedman, and Mandeles*, American & British Aircraft Development;* and *Military Innovation in the Interwar Period*, eds. Murray and Millett. On past and future relationships between innovation and Navy deployment strategy, see Tom Hone, "The Navy's Dilemma," Naval Institute *Proceedings* 127 (April 2001), 75-77; and Captain Joseph F. Bouchard, "The Challenge of Prolonged Peace," Naval Institute *Proceedings* 127 (May 2001), 52-7.

[800] Few naval analysts - and almost no U.S. Navy officers - had gone on record as of 2002 to advocate a significant U.S. Navy role in homeland defense, let alone a major alteration in Navy deployment strategy to optimize such a role. Nevertheless - as in previous eras - Congressional voices have been raised advocating precisely such a change. A few days after the September 11, 2001 attacks on the World Trade Center and the Pentagon, the press reported remarks by Representative W.J. "Billy" Tauzin (R-LA) advocating deployment of a U.S. navy cruiser on the Potomac River to protect airspace. See Craig Timberg, "National May be Closed 'a Long Time,' Bush Aide Says," Washington Post (September 16, 2001), B2. Nine months later, the press reported that Representative Don Young (R-AK) had suggested that the Navy assume more of the maritime homeland defense burden in lieu of the Coast Guard. See Darren Goode and Christopher J. Castelli, "House Transportation Chairman Suggests Navy Patrol U.S. Ports," *Inside the Navy* (June 24, 2002), 11. For an argument that the Navy is, at best, ambivalent to an enhanced coastal defense role and the changed deployment strategy this would entail, see Captain Roger W. Barnett (Retired), "Naval Power for a New American Century," *Naval War College Review*, 55 (Winter 2002), 49 & 57.

[801] A "Do Some of Everything" model satisfies current Defense Department declaratory strategy cited earlier. See Rumsfeld, "Secretary of Defense Quote of the Day."

[802] In the 1889-1905 era, the Navy deployed a variety of forces simultaneously: The forward stations were still deployed around the world, but the North Atlantic Squadron was growing in strength and becoming a blue-water battle fleet. That squadron - and the short-lived Squadron of Evolution in the early 1890s - were heavily involved in fleet battle experimentation, although they were also used as combat surge forces, most notably in the Spanish-American War. Homeland defense forces in the form of monitors, torpedo boats, and submarines were also deployed in the nation's ports and harbors. In 1947-50, the First and Second Fleets had forward surge responsibilities; new sea-based combat-credible forward fleets in the Mediterranean and Western Pacific were emerging; small forward presence forces for MOOTW were in place in the Persian Gulf, Japan, and Northern Europe; the Army was turning its homeland defense controlled mine forces over to the Navy; and the Air Force was beginning to pressure the Navy to contribute to the homeland air defense of North America. Meanwhile, the Navy had some small experimentation forces testing new tactics and procedures, especially the Submarine Development Group as regards forward submarine anti-submarine warfare. No one type of deployment was clearly dominant at this time - although the combat-credible forward- deployed fleet was being pushed by Chief of Naval Operations Admiral Forrest Sherman and other Navy leaders as the wave of the future.

[803] For an argument advocating Navy adoption of a variant of this model, see J. F. Miskel, R. J. Norton, R. Ratliff and D.A. Williams, "Fleet Commander Retires, 2030," Naval Institute *Proceedings* 128 (June 2002), 2. They posit a Navy organized into a Northern Fleet - with homeland defense and experimentation responsibilities - and a forward deployed Southern Fleet. Allied naval forces would replace the Sixth Fleet as well as take over Second Fleet responsibilities in Northern Europe and the Baltic.

[804] For a discussion of the implications of such a "three-way stretch," see Thomas P. M. Barnett and Henry H. Gaffney, "It's Going to be a Bumpy Ride", Naval Institute *Proceedings* 119 (January 1993), 23-26.

Future study and analysis

[805] The Navy study, cited earlier, was *History and Heritage in the U.S. Navy*.

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