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## The Naval Policies of the Harding Administration: Time for a Reassessment?

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### Introduction

Naval historians have been less than charitable in their assessment of the Harding administration. Their bill of particulars is familiar and long standing. The administration succumbed to a naval agreement that saw the scrapping of some 30 capital ships; the administration accepted a ten-year holiday on battleship construction; the administration consented to withdraw its Pacific bases to Pearl Harbor—and to add insult to injury the administration imposed draconian cuts on the Navy's budget while permitting oil companies access to naval reserves—thus dissipating a scarce resource. The fact that Harding's Secretary of the Interior, Albert Fall, served a one-year prison sentence and Secretary of the Navy Edwin Denby invited a Senate vote of no confidence, captures the essence of an administration not merely antinavy, but antipublic as well.

This paper revisits a series of policy decisions including the administration's ban on aviation merger; the creation of a Bureau of Aeronautics; a Washington naval arms agreement; a fleet reorganization; Marine Corps policies, the submarine service; and outsourcing of naval supply. We will suggest that the standards employed to assess Harding's policies have tended to be short term in content, limited to the 1920s. Invoking another standard—the transpacific campaign of World War II—yields another assessment of Harding's policies. Indeed, we will assert that, on balance, the Harding administration's naval policy was remarkably forward looking if not prophetic.

### Policy Overview

#### *Unified Aviation*

Almost from the first day of taking office, President Warren Harding was confronted by the issue of aviation unification. Brigadier General William Mitchell, Army Air Service, had captured the imagination of Congress by asserting that the battleship was obsolete—and indeed, in the summer of 1921, Mitchell's bombers sank a captured German battleship. General Mitchell also proposed that Army, Navy and commercial aviation be combined into a single government organization.<sup>1</sup> After all, private aviation was in its infancy and most technical advances in airframe and power plants had been derived from government contracts.

On April 11, 1921, President Harding, addressed a special session of Congress and rejected any commingling of private and public sector aviation activities. The President emphasized that his

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administration believed in a separate military and civilian aviation, that U.S. policy should promote a competitive, commercial aviation industry.<sup>2</sup> That pronouncement did little to address Mitchell's proposal for an Army-Navy aviation merger, however. The advantage of eliminating duplicate aviation activities made such a combination quite attractive—particularly for an administration attempting to liquidate the costs of World War I.

Nor was Mitchell alone in touting the value of unification. In 1918, the British government, in the name of coordination and economy, merged the Royal Naval Air Service (navy) and the Royal Flying Corps (army) to create a new institution, the Royal Air Force (RAF). What was prudent for Britain could hardly be folly for the United States. Nevertheless, President Harding announced that both services—Army and Navy—would retain and keep their individual aviation units. The United States would not emulate the RAF model.

The President's policy left naval aviation in administrative limbo, however. Just where would aviation reside within the Navy Department? One option was clearly unacceptable: operating out of the Chief of Naval Operations (CNO) Office. Admiral William Benson, CNO under the Wilson administration, preferred towed kite balloons rather than naval spotting planes and opposed the conversion of a collier to an experimental aircraft carrier—*Langley*.<sup>3</sup> As a final touch, Benson scattered aviation personnel among and between the Navy's bureau system and all but paralyzed aviation decision-making.<sup>4</sup>

In his April address, President Harding announced a new residence for naval aviation—a Bureau of Aeronautics (BuAer), a bureau responsible for aviation personnel, training, and equipment procurement. Secretary of the Navy Edwin Denby assisted in drafting appropriate legislation and Denby appointed a former battleship captain, William Moffett, later Admiral, to head the new bureau. Admiral Moffett would later be known as the father of naval aviation.

## ***Naval Arms Agreement***

Upon taking office, the Harding administration inherited a naval arms race despite the fact that the German Fleet lay scuttled at Scapa Flow, a legacy of Woodrow Wilson's naval policies. In 1916, President Wilson proposed the construction of battleships, battlecruisers, and some 150 auxiliary vessels that would give the U.S. fleet world supremacy. After America declared war against Germany in April 1917, the U.S. discovered that German submarines had reduced Britain's food supply to some six weeks. Postponing its battleship buildup the U.S. shifted production to destroyers and destroyer escorts. After antisubmarine warfare and merchant convoys alleviated the shipping crisis, the U.S. renewed its 1916 naval program.

Three weeks after the November 1918 Armistice, President Wilson announced his intention to build ten additional battleships, six more battle cruisers, and 140 odd vessels. England, appalled by the action, let its views be known at the Paris Peace talks in what Josephus Daniels, Wilson's Navy secretary, called the "sea battle of Paris." Japan embarked on an 8:8:8 program; 8 battleships, 8 battlecruisers within 8 years, and Japan's naval budget exploded from \$85 million

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in 1917 to \$245 million by 1921.<sup>5</sup> Britain, though financially in debt to the United States, announced the construction of the 43,000-ton *Hood* class of dreadnought.

U.S. Navy professionals were especially concerned by Japan's program. Since 1902, Japan and Britain had entered into a naval alliance, and during the Great War, Japanese destroyers escorted British Commonwealth troops to the Mediterranean theater. Any postwar U.S.-Japanese war held the potential of involving the U.S. Navy in conflict with Britain, in effect a two-ocean war.

Equally, U.S. naval planners viewed Japan's 1914 occupation of the former German islands of Micronesia, the Marshalls, Marianas, and Carolines as an ominous development. Micronesia straddled a line between Hawaii, Guam, and the Philippines. At the Paris Peace Conference in 1919, naval advisors to the President would accept Micronesia occupation if Japan agreed not to convert the islands into a naval base.<sup>6</sup> Taking a somewhat stronger posture, State Department officials told Wilson that the islands should be returned to Germany, and then as reparation payments, turned over to the United States.<sup>7</sup> Wilson recoiled from any suggestion that the U.S. share in the spoils of war, however. The President's intelligence advisors suggested that Wilson accept Japan's occupation of the former German islands if Japan voted for a League of Nations. (The intelligence advisors also thought the League would abolish submarines.) On that promise, President Wilson accepted Japanese control of both Micronesia and China's Shantung peninsula.<sup>8</sup>

Even before the Harding administration assumed office several members of the Senate called for a halt in U.S. naval construction. Once in office, the President, feeling pressure from his own party, set November 1921 as the date of an Allied naval conference. Secretary of State, Charles Evans Hughes, opened the session with the declaration that the United States was prepared to reduce its navy by 800,000 tons. Negotiations among the parties continued the rest of the year and were completed in February 1922. The agreement called for a 5:5:3 battleship ratio assigned to the U.S., Britain, and Japan as well as a ten-year construction moratorium on battleships and battlecruisers. To compensate for Japan's inferior tonnage allotment the British and U.S. agreed to pull back their bases from the western Pacific. Britain transferred its fleet from Hong Kong to Singapore. The U.S. designated Pearl Harbor as its most western base. Japan later withdrew its troops from China's Shantung peninsula and promised not to fortify the Micronesian islands.

Despite the misgivings of Navy professionals, the Washington Arms Agreement sailed through the U.S. Senate. The U.S. Navy not only honored the agreement but Admiral William Coontz, the Navy's CNO, issued a warning that Guam carrier pigeons not infringe upon Japan's islands in the Carolines.<sup>9</sup> But that did not imply that naval professionals welcomed the treaty. On the contrary, it was their view that the Harding administration had ceded control of the western Pacific to the Japanese navy.

The Washington Arms Agreement imposed a tonnage ceiling on aircraft carriers as well as capital ships. Initially, Secretary of the State Hughes sought to ban battlecruiser conversion to

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carriers but was dissuaded by Assistant Secretary of the Navy Theodore Roosevelt, Jr.<sup>10</sup> Secretary Hughes relented and Roosevelt Jr. took his case to the U.S. Senate and testified that converting battlecruisers to carriers constituted an exercise in cost savings. Thus were born the carriers *Lexington* and *Saratoga*, 36,000-ton ships, flight decks of nearly 900 feet and a speed of 33.5 knots. A year later, President Harding informed Denby his intention to convert additional battlecruisers to aircraft carriers.<sup>11</sup>

## ***Fleet Reorganization***

The Harding administration embarked on a third set of decisions when Secretary Edwin Denby transferred the U.S. fleet to the West Coast and Hawaii. (Daniels had transferred half the fleet in 1919.) The Secretary's move, cleared by both Secretary Hughes and President Harding, was announced formally in December 1922. Denby also created a Battle Force, a Base Force, a Control Force, and a Scouting Force. The Battle Force included the Navy's battle line and carriers; the Control Force, cruisers and destroyers; the Base Force, a logistic train of colliers, oilers, and cargo vessels. In 1923 fleet maneuvers, the cruiser *Omaha* was refueled by employing an abreast technique.<sup>12</sup> However tentative, the Base Force was exploring the concept of underway replenishment.

Even before the 1922 Arms Agreement, Pearl Harbor emerged as a critical U.S. Pacific base. Secretary Josephus Daniels proposed to bolster U.S. presence in Hawaii by adding a naval air station, a submarine station, battleship mooring, channel dredging, submarine patrols, mine barrages and torpedo nets. Daniel's plan also called for expanded submarine patrols around Pearl Harbor.<sup>13</sup> But plans and expenditures constitute two different exercises; and despite Daniels' testimony in a closed session, Congress was reluctant to appropriate money.

Within weeks of taking office, Denby reviewed and signed off on Daniels' Pearl Harbor strategy. In the fall of 1921 Denby tried to get congressional approval for a Pearl Harbor upgrade. In response to Senator Miles Poindexter, Senate Naval Affairs Committee, Edwin Denby's secret letter explained the Navy's Pacific posture. The Secretary stated that any forthcoming battle against an Asian power would turn on a struggle over bases, that the U.S. Navy would assault one island base and after consolidation, leverage that position into subsequent island assaults.<sup>14</sup> Pearl Harbor, in short, was critical to both U.S. defensive and offensive naval operations. But Denby had no better luck than Daniels did in securing funds for Pearl Harbor.

By 1921, relations between the U.S. and Japan were not helped by the disposal of German submarines. Not unlike the U.S. and Britain, Japan had received German boats as part of World War I reparations, and indeed Japan hired German diesel experts to serve as naval consultants.<sup>15</sup> U.S. Admiral John K. Robison, Chief of the Bureau of Engineering, insisted that Japanese submarines could isolate Pearl Harbor by interdicting the 2,200 miles between the Oahu base and the U.S. West Coast.<sup>16</sup> Under that scenario it was conceivable that Hawaii might run out of fuel oil before U.S. combat ships could lift a Japanese blockade. Denby was briefed on the vulnerability of the Hawaiian base and the Secretary was cognizant that the CNO Plans Division

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wanted the oil tanks constructed above rather than below the ground to save time.<sup>17</sup> While all this was going on, naval professionals informed Denby that private wells, adjacent petroleum reserves in California and Wyoming, were draining off naval oil reserves.

Under Secretary Daniels, naval oil reserve policy had operated out of the Secretary's office. Denby, possessing little oil expertise, regarded Navy's petroleum activities as duplicating the work and staff of the Bureau of Mines, Interior Department, and so advised President Harding. Denby convinced the President to transfer reserve administration back to Interior where it had resided in 1920. By executive decision, the President authorized the transfer in May 1921.

Secretary Denby assigned Admiral Robison to act as liaison to Interior. Admiral Robison in turn convinced Secretary Fall to swap crude reserve oil for refined oil and storage facilities at Pearl Harbor.<sup>18</sup> Denby checked the lawfulness of the exchange with the Navy's Judge Advocate General and, once cleared, the Interior Secretary negotiated the deal with the Pan American Oil Company owned by Edward Doheny. A Senate committee later discovered that Secretary Fall had accepted money from two lessees. Secretary Denby, caught up in the scandal, was ousted from office after a Senate vote of no confidence. Upon returning to Detroit, Michigan's Grand Central railroad station, Denby told well-wishers that oil would be available at Pearl Harbor if and when the Navy needed it. The year was 1924.<sup>19</sup>

## *Marines*

A fourth administrative policy focused on the Marine Corps. Edwin Denby, a former Marine, had served in both the Spanish American and the World War I. At Warren Harding's inauguration, Edwin Denby asked General John A. Lejeune to remain as Marine Corps Commandant. The Navy Secretary, under pressure to reduce naval expenditures, ordered a consolidation of Navy and Marine Corps recruiting offices. Commandant Lejeune sought to separate Marine from Navy recruitment and after clearance from the Budget Bureau, Denby accepted Lejeune's request for independent recruiting offices.<sup>20</sup>

General Lejeune was also aware of the tenuous status of the Marine Corps within the Navy. In the past, the Marines had served as the Navy's police—guarding naval yards and ship installations, an essentially passive and to some critics a redundant role. Lejeune, influenced by the writings of Lieutenant Colonel Earl Ellis, agreed that in the Far East the U.S. and Japan were now on a collision course. The 1922 Washington naval agreement presented Lejeune with an unusual opportunity and he seized it.<sup>21</sup> Three days after the treaty announcement the Marine Commandant sent a memo to the Navy's General Board and stated that the arms agreement did not preclude a mobile force tied to the U.S. fleet. Lejeune thus embraced a new Marine doctrine, amphibious assault, and established a Marine Expeditionary Force wedded to that doctrine.

General Lejeune obtained funds to construct an airfield near Quantico, Virginia to explore the concept of tactical ground support. Denby asked Secretary of War John W. Weeks if Marines

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could attend the Army's tank school at Camp Meade, Maryland.<sup>22</sup> By 1923, the Marines began experimenting with an amphibious tractor housing a 70mm gun designed by Walter Christie.<sup>23</sup>

Lejeune and the Control Force held Caribbean amphibious maneuvers between 1921 and 1924. The maneuvers were largely exercises in trial and error. Captain Ralph Earle, Control Force Commander, in a subsequent Naval War College lecture, offered his own view of the exercises. Captain Earle wrote that battleship gun support stopped prematurely, that battleships required high angle explosive rather than flat penetration shells; that Navy lighters were ill-designed for troop landing; that ground troops required air artillery spotting; and that fleet auxiliaries were unable to keep pace with combat ships.<sup>24</sup> A "blue" commander in chief recorded later that when naval and amphibious commanders occupied the same ship, battle coordination problems were sorted out and quickly dealt with. In the future, the commander recommended that expedition flagships should house radio and communication equipment.<sup>25</sup>

## *Submarines*

A fourth administration effort focused on the submarine service. When the Navy acquired several German boats as war reparations, U.S. submariners marveled at the quality of 1915 vintage diesels. Applying that standard to U.S. power plants only served to underscore the performance shortfall of U.S. boats. In fact, U.S. boats were plagued by so many mechanical deficiencies that one surface officer wrote off submarines as essentially useless.<sup>26</sup> At the time, submarines were defined as scouts for the battleship. Amphibious exercises, however, prompted Earle to suggest that rather than scout or attack combatant vessels, submarines should concentrate on the enemy merchant ships; i.e., destroy enemy logistics.

## *Outsourcing*

Finally, the Harding and Wilson administration differed on the matter of naval buying practices. Woodrow Wilson's cabinet was populated by individuals who held a profound distrust of the nation's business sector and Navy Secretary Daniels was no exception. Daniels subscribed to a policy of bureau diversification. Pilots, for example, required planes; therefore, the Navy must operate an aircraft factory. The Bureau of Ordnance supplied guns, the bureau should diversify into armor plate production; the Navy controlled petroleum reserves, the Navy should own its own oil refinery; submarines fired torpedoes, the Bureau of Ordnance should manufacture torpedoes. Indeed, Daniels advocated enlarged government naval yards, the nationalization of oil industry and pushed for a naval monopoly of radio broadcasting.<sup>27</sup> Individuals of commerce, he suggested, were motivated by qualities less sterling than that of serving the public interest.

The Harding administration, by contrast, was committed to private markets, a belief that open rivalry best assured user choice, quality products, and cost related prices. To employ today's jargon, the Harding administration favored a policy of supply outsourcing. Accordingly, the administration, in sponsoring the new Bureau of Aeronautics, moved away from a government arsenal model of plane design and plane fabrication. In fact, BuAer set plane specifications and deferred to private suppliers to come up with a plane design and power plant. This is not to

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suggest the BuAer was ambivalent about engine capability. The Bureau of Aeronautics sought a radial air-cooled as apposed to the Army's preference for a liquid-cooled engine.<sup>28</sup> Nor was the bureau averse to employing its buying power to send a message to private sector suppliers. In one instance, the bureau simply stopped purchasing engines (Wright Aeronautical) and funded the start of a new air-cooled engine competitor, Pratt and Whitney.

The Harding administration experienced mixed results trying to reverse Woodrow Wilson's merchant marine policy, however. As part of the U.S. war effort, the Wilson administration created a U.S. Shipping Board, and its affiliate, the Emergency Fleet Corporation. The corporation ordered the construction of some 2,000 ships, many built after the 1918 Armistice. The Harding administration thus inherited an inventory of unsold ships as well as a government shipping operation costing the some 50 million dollars annually. Built under an environment of cost plus, the inventory included vessels now burdened by noncompetitive operating costs. But more important, the ships, as naval auxiliaries, were obsolete. They could not keep up with naval combatant vessels.

President Harding searched for someone to tackle the U.S. Shipping Board problem. On his fourth try, the President convinced Albert D. Lasker, a Chicago advertising executive, to take the job. The President informed Albert Lasker that, in effect, he would not wish the task on anyone.<sup>29</sup> Lasker, nevertheless, tore into the assignment with unusual energy. He tried to auction wartime vessels to the highest bidder, but the economy experienced a postwar recession, and ships were a drag on the market, especially wooden ships. Lasker introduced a golf driving range on government operated transatlantic liners but European ships were more competitive—they served liquor. But it was the Navy's auxiliary plan that Lasker devoted much of his time. How could U.S. shipyards build fast tankers that, in time of war, could double as naval oilers? In response to this question, Lasker and Harding came up with a subsidy package. The U.S. government would pay a stipend to buyers of fast vessels. The stipend was progressive, the faster the ship, the larger the subsidy. That stipend plus a combination of tax credits would give buyers an incentive to order ships thereby stimulating merchant vessel construction in the private sector.

Congress quickly tore the plan apart. Progressives on both sides of the isle commented on cash payments to the likes of a Standard Oil of New Jersey, the United States Steel Corporation, and the United Fruit Company.<sup>30</sup> These corporations, critics complained, would enjoy a public largess for simply supplying products to themselves.

Commissioner Lasker tried to assuage congressional critics. In time of a national emergency, he testified, tankers could serve as Navy oilers; and merchant vessels could be converted to aircraft carriers.<sup>31</sup> The U.S. Senate found Lasker's argument unpersuasive, even though the administration eliminated Standard Oil's tax credit provision. Indeed, the President's own party, especially Senators from the Midwest, turned against him and after a Senate filibuster Harding's program stalled then slowly expired. Although he did not have the votes, Harding reminded his

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Senate legislative leader that the ship subsidy “was an indispensable element if we are again involved in war.”<sup>32</sup>

Marine Corps’ exercises experience in the Caribbean highlighted the inadequacy of Bureau V-shaped lighters. Even Captain Earle questioned why Marines could not disembark from lighters without getting soaked. General Lejeune asked the Bureau of Construction and Repair to provide a self propelled lighter but the bureau responded that towed barges were quite adequate.<sup>33</sup> Although battleships had been employed with some success, the Marines called for specialized artillery lighters. It was evident in the early 1920s that the Marines were frustrated by landing craft options supplied by the Bureau of Construction and Repair.

As noted, fleet exercises in the twenties revealed chronic deficiencies in submarine engines that ranged from cylinder cracks to burned out bearings.<sup>34</sup> Electric Boat, a private yard, delivered submarines powered by diesels from its manufacturing affiliate, Nelseco. The Nelseco engines were so temperamental that the Navy withheld progress payments to Electric Boat and Secretary Edwin Denby, drawn into the dispute, supported the submariners.<sup>35</sup> Still, in an environment of tight budgets, Navy bureaus and naval yards tended to insulate themselves from outside competition. The Navy cancelled torpedo contracts to E. W. Bliss, Inc. and confined production to the Bureau’s Torpedo Station in Newport, Rhode Island. Capital expenditures injected into the Portsmouth, New Hampshire naval base effectively eliminated the Lake Submarine Company as a viable competitor. Still, submariners confronted a strategic challenge. U.S. boats stationed in Pearl Harbor now required an operating range to 10,000 miles, a surface speed of 20 knots. The 1922 Washington Arms Agreement overnight had rendered the Navy’s T-class submarines virtually obsolete.

To sum up, the Harding administration’s naval agenda addressed several contentious policy issues; aviation merger; naval arms agreement; U.S. fleet reorganization; Marine Corps doctrine; the submarine service, and a range of supply outsourcing options. In a postwar world, what was the content of the Navy’s Pacific strategy? That question was put to the General Board by Assistant Secretary Roosevelt, Jr., in the spring of 1922. The next year the Board responded. The Navy would—

- Maintain the readiness of an expeditionary force
- Employ naval airpower overwhelmingly
- Provide mobile equipment to support transpacific operations
- Impose a blockade of the Japanese mainland<sup>36</sup>

Still, by the standards of the 1920s, naval professionals indicted the administration’s stance on the naval arms agreement and the handling of naval oil leases. The first capped battleship construction; the second enabled private corporations to “squander” a scarce resource. Teapot Dome, in short, left an indelible mark on the administration’s reputation. But is the benchmark of



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the twenties the only valid measure of Harding's naval decisions? We suggest not. Indeed, many naval experts submit that the duress of battle invokes a substantive test of organizational responsiveness and asset effectiveness. World War II constitutes one such a standard. Stated as a question, how does the administration's decision stand up against the Navy's World War II Pacific campaign, specifically, the Navy's 1943 drive across the Pacific. It is to that issue we now turn.

## *Central Pacific Campaign of World War II*

One must stipulate at the outset that in a span of twenty years naval policy has been driven by multiple external and internal factors to say nothing of the fundamentals of technological change. That said, relating naval decisions of the early 1920s to the central Pacific campaign of the 1940s, can be instructive. Consider, for example, the administration's decision to reject the RAF model that consolidated Britain's army and naval aviation units. Historians generally agree that the British navy's Fleet Air Arm, under RAF control, atrophied between 1918 and 1937.<sup>37</sup> True, the Admiralty recovered its aviation unit in 1939 but by that time, the damage of aviation unity was not inconsequential. Naval fabric covered, fixed carriage planes were capable of speeds slightly in excess of 100 knots per hour; and during the Pacific campaign, the British Pacific Fleet was largely dependent upon U.S. planes, logistics, and doctrine.

The Harding administration's decision to form a Bureau of Aeronautics signaled that naval aviation would remain integrated with the fleet—a determination not unrelated to battle doctrine. Dr. Lincoln Ashcroft put it this way: “The incorporation of aviation as an integral part has been the most important development since the introduction of steam. It revolutionized naval strategy and tactics.”<sup>38</sup>

Nor was the administration's decision to create a separate aviation bureau without opposition within the Navy's bureau system. Dr. Steward Rosen has noted, “Mitchell fought but failed to prevent the establishment by President Harding of the navy's bureau of aeronautics, an event that all historians point as crucial to the successful development of carrier aviation.”<sup>39</sup>

To be sure, BuAer was perceived as an upstart by other bureaus and Admiral Moffett had his political and bureaucratic work cut out for himself. In spite of the Bureau's internal budget and jurisdictional struggles, Geoffrey Till, the British aviation historian, has concluded that the BuAer provided “a major source of innovation” during the interwar period.<sup>40</sup> Professor Vincent Davis goes farther and asserts that the “creation of BuAer was clearly the most important political development arising from the aviation issue in the decades between two World Wars.”<sup>41</sup>

Without question, Harding's naval disarmament agreement qualifies as his most contentious policy action. Indeed, President Franklin Roosevelt, in a 1944 Presidential campaign speech, reminded his audience that the Harding administration had “scuttled” the U.S. Navy.<sup>42</sup> But in June 1944, carriers, not battleships, destroyed 350 Japanese planes and essentially terminated Japanese aviation as an effective battle force (the Marianas turkey shoot). After that, Japanese

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carriers were employed as decoys. Still, the administration's decision to cap battleship construction for ten years was highly controversial. One school of thought holds that had the Harding administration not done so, battleship construction costs would have crowded out other combatant vessels—as it threatened to squeeze out carrier construction in 1942.<sup>43</sup> By 1943, however, the dreadnought had been superseded by carrier aviation as the Navy's capital weapon; fast battleships thus became carrier auxiliaries; slow battleships assigned to tactical amphibious support. Technology had redefined the 1920 index of naval power.

Some naval scholars assert that the U.S. Navy backed into World War II burdened by an overabundance of battleships and a dated battle doctrine; and that it was Fleet Admiral Ernest King who, in 1942, downgraded battleship priority in favor of carrier and submarine construction.<sup>44</sup> Other historians insist that the Washington naval agreement actually fostered and encouraged carrier aviation development during the interwar period.<sup>45</sup> In any event, the Washington arms agreement set the stage for the U.S. to convert two battlecruisers into the carrier's *Lexington* and *Saratoga*. Before that event, neither Daniels nor Denby had been successful in prying out of congress funds for the construction of carriers from the keel up. All of this led Dr. Desmond Wilson to observe: "It is safe to say that given the prevailing intellectual atmosphere of the time, these ships would never have been built as large carriers had it not been for the naval arms limitation Treaty of 1921."<sup>46</sup>

And after the war, Fleet Admiral King was unusually direct in asserting that had the *Lexingtons* remained battlecruisers they would have been obsolete weapons by the 1940s.<sup>47</sup>

In the late 1920s, some surface officers regarded the *Lexington*-class carriers as unwanted white elephants—and the ships were almost mothballed during the depths of the Great Depression. But the carriers did participate in fleet exercises in 1929 and thereafter. The ships displayed an offensive capability that according to Dr. Norman Friedman, constituted "a major factor in the evolution of U.S. carriers doctrine."<sup>48</sup>

Fleet exercises also revealed that carriers could operate as a self contained tactical unit. Not surprisingly, the *Lexington*-class carriers influenced subsequent carrier design—the *Yorktown*-class and the *Essex*-class that formed the core of the Fast Carrier Task Force of 1943.<sup>49</sup>

Secretary Denby's decision to transfer the U.S. fleet to the Pacific, according to one historian, remains his most lasting contribution.<sup>50</sup> Over time, those forces experienced a subtle transformation. By 1943, the Battle Force had become institutionalized as the Fast Carrier Task Force. The Base Force, Pacific Fleet, evolved into the Service Squadron, Pacific Fleet, a mobile logistics and underway replenishment protocol that accelerated the fleet's westward move to the Gilberts, Marshalls, Marianas, Peliliu, Iwo Jima, Okinawa.<sup>51</sup> Within eleven months, the U.S. fleet raced 4,200 miles across the central Pacific, employing Fast Carrier Task Force, Army-Marine amphibious forces, and a fleet train of 2,930 auxiliaries. After the war Japanese naval officers confirmed that they had expected damaged U.S. ships to return to Pearl Harbor for

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repair, delaying and extending the next U.S. offensive move. Bernard Brodie called the Service Squadron a “strategic surprise”; Admiral Nimitz termed fleet logistics his “secret weapon.”<sup>52</sup>

Edwin Denby’s endorsement of the 14<sup>th</sup> Naval District buildup at Pearl Harbor simply ratified Josephus Daniels’ earlier Orange agenda. But it was under Denby’s watch that the Pearl Harbor tank farm was constructed and filled with 1.5 million gallons of fuel oil. More than one naval expert has observed that had Japan destroyed Pearl Harbor’s tank farm and repair facilities, the U.S. fleet would, of necessity, have had to retreat 2,200 miles to the West Coast. All of this had led others to suggest that Admiral Nagumo’s reluctance to hit Pearl Harbor’s tank farm and repair facilities constituted Japan’s first blunder of the war.<sup>53</sup>

Marine Corps historians acknowledge that during the interwar period, the Navy treated the Corps as little more than a stepchild. Still, by 1943 the Marine doctrine of amphibious warfare was fairly well established. After the traumatic Gilberts campaign (Tarawa), the Marines began to assemble naval gunfire, fleet logistics, land artillery and naval aviation into an integrated weapons system. Later, Marine aviators were able to quicken tactical ground support by operating from their own escort carriers (1945). New generations of tanks and assault weapons, supplemented by make-shift innovations in the field, tailored weapons to island topography and Japanese defense tactics.

The assault command ship (AGC) epitomized Marine-Navy integration. Recycled merchant vessels or former Coast Guard ship, the AGC served as a communications hub that housed both naval and amphibious staffs. The Marines, in effect, had stormed not only Japanese atolls, but U.S. bureaucratic islands as well. One historian concluded: “The active renaissance of Marine Corps amphibious studies . . . can be very definitely dated from 1921 when the corps established its plan, its forces, and its schools for the express purpose of reducing landing operations to a scientific and technical basis.”<sup>54</sup> After the war, the British military historian J.F.C. Fuller observed that the U.S. Marines had contributed “the most far reaching tactical innovation of the war.”<sup>55</sup>

The Navy’s submarine force, subsisting on thin gruel during the interwar period, was also defined by the battle line. In June 1944, U.S. submarines did cooperate with Marine amphibious operations in the Pacific. Marine General Howland Smith applauded submarine tactical support when a U.S. submarine wolf pack sank five out of seven Japanese transports carrying troop reinforcements (Saipan).<sup>56</sup> Between 1944 and 1945, U.S. submarine isolated Japan from food, fuel, and raw material imports and destroyed so many Japanese merchant vessels and tankers that by the last year of the war, U.S. submarines were reduced to targeting junks.

And finally, how did outsourcing as an operating policy fare during World War II? Consider naval aviation. In the 1920s, BuAer served as development patron for plane and engine suppliers. From the mid-thirties, however, competition among commercial airlines spurred aircraft suppliers to introduce stressed skin monoplanes, controlled pitch propellers, heated carburetors,

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pressurized cabins, more powerful engines, treta-ethyl gas, wing flaps—so much so that military biplanes dropped out of national aviation races.<sup>57</sup> Locked into a 1925 report that insisted aviation had reached its technical potential, the Navy's "gun club" apparently neglected aviation developments of the late 1930s.<sup>58</sup>

The Harding administration's decision to enjoin an Army-Navy merger encouraged the Navy to develop specialized aviation assets. The administration's anti consolidation decision was nevertheless controversial. Some congressional members argued that two service organizations buying separate planes and engines smacked of wasteful duplication. But, a postwar study of Army and Navy engines Denby affirmed the administration's 1922 decision. As the report observed: "The existent of two independent agencies meant that the mistakes and omissions of one were corrected in a surprisingly number of instances by the actions of the other."<sup>59</sup>

After 1937, the Navy pushed battleship and cruiser construction to the neglect of fleet auxiliary vessels. President Franklin Roosevelt's U.S. Merchant Marine Act of 1936, attempted to correct that oversight by introducing a "national defense" speed subsidy to merchant ship construction. The next year, the commission adopted standard oil's tanker design and constructed twelve Cimarron tankers (18 knots). The Standard Oil Company of New Jersey agreed to buy the tankers—the same company assailed by Congress under Harding's maritime program. The Maritime Commission later was responsible for building some 5,500 cargo, transports, tankers, escort carriers, and landing craft vessels. Taking a leaf from Harding's BuAer's model, the Roosevelt administration engineered an institutional end run around the Navy's government arsenal system.<sup>60</sup>

After Pearl Harbor, the Navy, in desperate straits, requisitioned Standard Oil tankers and converted five of them to escort carriers—CVEs—in an attempt to redress the paucity of carriers in the U.S. fleet.<sup>61</sup> Alfred Lasker lived long enough to see the fulfillment of his 1922 prophecy that merchant ships could be retrofitted to carriers.<sup>62</sup>

The Navy's Bureau of Construction and Repair did design and produce landing craft prototypes for the Marine Corps. In 1933, however, a Marine Corps equipment board rejected "bureau ships" and instead turned to private suppliers. In the central Pacific, Marine General Holland Smith commended the Higgins Company for designing a tank craft in 65 hours, compared to the Bureau of Ships effort of four years.<sup>63</sup> Battle imperative placed a premium upon compressed development cycles.

By 1943, too, the U.S. submarine service finally possessed a workable torpedo after a long bout with defective ordnance products. The Bureau's propensity to blame product failure on the customer—submariners—only validated the Harding administration's skepticism of public sector accountability. Surprisingly, it was commercial railroad engine suppliers that gave U.S. submarines a lightweight diesel power plant capable of operating 12,000 miles with a surface speed of 20 knots.<sup>64</sup> (Both General Motors and Fairbanks Morse supplied the bulk of U.S.

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submarine diesel engines.<sup>65</sup>) Given the range, speed and ordinance capability of the *Gato* and *Balao* submarine classes, one historian concluded that for submariners, the Washington naval treaty had proved a “blessing in disguise.”<sup>66</sup>

Oil outsourcing continues to bedevil the reputation of the Harding administration. When Senator John J. Walsh, lead investigator of naval oil reserve leasing, was asked why Secretary Edwin Denby should not be subject to congressional impeachment, the Senator rejoined that one can’t impeach an individual for stupidity.<sup>67</sup> A subsequent Senate report and federal court decisions cleared Denby of any wrongdoing; but that was after he had been driven from office.

The Senate vote against Denby of February 11, 1924, was not without some irony. That year oil was discovered in east Texas—a discovery that undercut the basic premise of the Navy’s reserve program. Oil glut, not scarcity, sent oil prices so low that the state of Texas created a control board to assign quotas to the state’s oil producers (the Texas Railroad Commission); The Franklin Roosevelt administration then abrogated the nation’s antitrust laws to sponsor a nationwide oil fixing scheme—the National Recovery Administration (later declared unconstitutional).

The Harding administration’s outsourcing endeavor was regarded as a controversial policy decision, although both Secretaries Daniels and Denby had engaged in private leasing arrangements. But leasing oil reserves to private firms was fairly benign compared to a policy of outright privatization. That action had to wait until 1997 when the U.S. government sold, not leased, California’s reserve #1, Elk Hills, to the Occidental Petroleum Company.<sup>68</sup>

## Conclusion

Viewed from the perspective of the Navy’s Pacific campaign of World War II, what inferences can be drawn from the Harding administration’s naval policies? We suggest the following: The Harding administration—

- Interrupted a costly naval race in the 1920s
- Placed a tonnage cap on battleships and battlecruisers destined to be eclipsed by carrier aviation
- Transferred the fleet to the Pacific
- Upgraded Pearl Harbor as a base to include an oil tank farm, channel dredging, and ship docks
- Contributed to the evolution of fleet logistics (Base Force)
- Made one step in the evolution of the Fast Carrier Task Force (Battle Force)
- Recycled two battlecruisers into the *Lexington*-class carriers, which influenced the design of the *Essex*-class carriers
- Preserved naval aviation’s independence from an Army takeover

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- Provided an institutional home for aviation within the Navy's bureau system
- Contributed to integrating carrier aviation into the U.S. fleet, marking one step in the evolution naval doctrine
- Supported the Marine doctrine of amphibious assault
- Appointed forward looking leaders of the Marine Corps and the Bureau of Aeronautics
- Anticipated the need for fast oil tankers as naval auxiliaries
- Anticipated the conversion of merchant ships to aircraft carriers
- Marked one step in decoupling submarine tactics from the battle line
- Broached the concept of an integrated weapon's system—the amphibious command ship (AGC)
- Enjoined a move to unify military and commercial aviation under government regulation

But surely, the administration's policies experienced shortfalls. Three appear obvious. The Harding administration—

- Failed to resuscitate the U.S. merchant marine industry
- Scandalized the execution of naval oil reserve leasing
- Deprived the Navy of bases in the central and western Pacific

Harding, after calling two special sessions of Congress, acknowledged the defeat of his merchant marine program. With his own party in revolt, even the *New York Times* questioned whether the President had lost his political touch. But time redefines circumstance. In 1931, the Japanese introduced the *Teiyo Maru*, a tanker enjoying a 21,000 mile operating radius and capable of 17 ½ knots—a logistic shot heard in Washington, D.C.<sup>69</sup> One industry expert insists that subsidized Japanese merchant ships prompted the Roosevelt administration to introduce the U.S. Merchant Marine Act of 1936. And despite the fact that the Navy had booked destroyer construction at the Sun Ship Building and Dry Dock Company, Emory Land (Commission Chair) was able to refocus Sun's construction back to building oil tankers.<sup>70</sup> The *Cimarron*-class oilers arrived just in time for the Navy's Gilberts' offensive in November 1943. In short, one could make the case that the Harding administration's ship subsidy program was simply ahead of its time.

Second, Interior Secretary Fall's accepting money (he called it a loan) from oil companies constituted an indiscretion of the first order—although the meting out of justice remains puzzling to this day. Albert Fall went to prison for taking money; a court absolved Edward Doheny for giving money.<sup>71</sup> Secretary of the Navy Edwin Denby was proved innocent of any wrongdoing, but the U.S. Senate, not waiting for the evidence, found Denby guilty by cabinet association.

Forecasting of commodity pricing and oil reserves is not without risk. In the early 1920s, the Interior Department predicted that U.S. oil reserves would be exhausted by 1939.

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Conservationists argued that naval officers possessed the experience, expertise, and competence to speculate in global oil futures; that naval reserves must remain in the ground. All that would change by 1944. During the war, the Interior Department leased Elk Hills to Standard Oil of California and President Franklin Roosevelt appointed Ralph Davies, an officer of Standard Oil of New Jersey, as Deputy Coordinator, Office of Petroleum Coordination for National Defense.<sup>72</sup>

The debit side of the Harding balance sheet must surely include the base de-fortifications clause of the Washington Naval Arms Agreement. Naval professionals, historians, and politicians have charged that de-fortifying the Philippines and Guam constituted a strategic blunder of the first order, that the Harding administration effectively ceded the western Pacific to the Japanese navy.<sup>73</sup> But it must not be forgotten that it was the Wilson administration that sanctioned Japan's retention of Micronesia at the Versailles Treaty; and that both Daniels and Denby had difficulty prying congressional funds to upgrade Pearl Harbor, much less the Philippines or Guam. Indeed, as early as 1914, naval war planners had conceded the Philippines and Guam to Japanese control.<sup>74</sup>

The non-fortifications clause, nevertheless, was not without some redemptive value. The clause spurred the U.S. Navy and Marines to search for a substitute, a replacement, an alternative to a fixed, naval base. That incentive prompted the U.S. Navy to—

- Develop carrier aviation
- Engage in replenishment underway techniques
- Validate the Marine Corps amphibious assault doctrine
- Expedite ship conversion to oil and turbine power plants
- Stimulate a search for a low weight, reliable submarine diesel power
- Subsidize the merchant marine

That the non-fortification clause set the stage for institutional renewal is verified by Samuel Eliot Morrison, Robert W. Love, Stephen W. Roskill, Emory Land, Edward S. Miller; John Bradley, William R. Braisted.<sup>75</sup> Institutional reform of that magnitude constitutes no mean achievement. In some quarters, that is called leadership.

Finally, the Harding administration has been vilified as an ensemble of corporate Babbitts touting the virtues of the private market while inhibiting the diversification imperative of naval bureaus. On the issue of supply outsourcing, perhaps it is best that Fleet Admiral King has the last word. In March 1945, he wrote: "The magnificent productive capacity of the United States has given us the greatest navy in the world."<sup>76</sup>

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<sup>1</sup>Eugene E. Wilson, "The Gift of Foresight," *U.S. Naval Institute Proceedings* (March 1963): 47.

<sup>2</sup>*Report of National Advisory Committee for Aeronautics Message from the President of the United States*, April 19, 1921, 3. "The development of aviation is a whole will be made with the minimum of expense to the government through the adoption of a wise and constructive policy for the up building of commercial aviation." Also, *Army Naval Journal*, July 29, 1922, 1171, on President Harding: "He wants the United States to lead the world in commercial aviation in a letter to the Aeronautical Chamber of Commerce."

<sup>3</sup>Charles Mason Melhorn, "Lever for Rearmament: The Rise of the Carrier." Ph.D. diss., University of California, San Diego, 1973, 63.

<sup>4</sup>*Ibid.*, 116.

<sup>5</sup>George T. Davis, *A Navy Second to None: The Development of Modern American Naval Policy* (Westport, CT.: Greenwood Press, 1971), 252. Hector L. Bywater, *Sea-Power in the Pacific: A Study of the American-Japanese Naval Problem* (Boston: Houghton Mifflin, 1921), 16.

<sup>6</sup>Werner Levi, "American Attitudes Toward Pacific Islands, 1914–1919," *Pacific Historical Review* (1972): 61.

<sup>7</sup>*Ibid.*, 61.

<sup>8</sup>*Ibid.*, 63–64.

<sup>9</sup>Earl S. Pomeroy, "American Policy Respecting the Marshalls, Carolines and Marianas 1898–1941," *Pacific Historical Review* (1948): 49.

<sup>10</sup>Lawrence Madaras, "The Public Career of Theodore Roosevelt, Jr." Ph.D. diss., New York University, 1964, 180.

<sup>11</sup>Robert K. Murray, *The Politics of Normalcy: Government Theory and Practice in the Harding-Coolidge Era* (New York: W. W. Norton, 1973), 164.

<sup>12</sup>George C. Dyer, *Naval Logistics* (Annapolis, MD: U.S. Naval Institute, 1960), 128–29; United States Fleet Problem No. 2, 1922, 3, Records of the Office of Chief of Naval Operations, Record Group 38, National Archives.

<sup>13</sup>Memo Sub Board for the Development of Navy Yard Plans to Planning Division, Office of Naval Operations, Subject: Development of Channels, Anchorage and Mooring Spaces, Pearl Harbor, T.H., March 1920, Secretary of the Navy Secret and Confidential Correspondence 1919–26, Record Group 80, National Archives (hereafter RG 80, NA).

<sup>14</sup>Letter, Edwin Denby to Senator Miles Poindexter, October 15, 1921, 2; Memo, Major General Commandant to Chief of Naval Operations, Subject: Lighters for Landing Expeditionary Force, November 4, 1922: "It is recommended that a board be approved to investigate the matter of providing the best type or types of lighters. . . ."), Secret and Confidential Correspondence of the Office of the Chief of Naval Operations and Office of the Secretary of the Navy, 1919–1927, RG 80, NA.

<sup>15</sup>Carl Boyd and Akihiko Yoshida, *The Japanese Submarine Force and World War II* (Annapolis: Naval Institute Press, 1995), 12–14.

<sup>16</sup>Deposition of Admiral John K. Robison, n.d., 72, Denby Papers, Burton Historical Collection, Detroit Public Library: "Japan might stop oil supply to Pearl, but if we have



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got enough to maintain our forces for a considerable period we can within a month or so reestablish control of the lanes between San Francisco, Los Angeles, and Honolulu, and we can make it impossible for them [Japan] to accomplish conquest a victory over us.”

<sup>17</sup>Director of War Plans to Chief of Naval Operations, Subject: Fuel Oil Storage at Pearl Harbor, November 12, 1921, RG 80, NA.

<sup>18</sup>Deposition of Admiral John K. Robison, n.d., Box 8, Denby Papers.

<sup>19</sup>Ibid.; *Detroit News Tribune*, February 28, 1924.

<sup>20</sup>John A. Lejeune, *The Reminiscences of a Marine* (Philadelphia, PA: Dorrance & Co., 1930), 473–75.

<sup>21</sup>Major General Commandant, Memo for the General Board, Subject: Future Policy of the Marine Corps as Influenced by the Conference on Limitation of Armament, February 11, 1922, File 432, Records of the General Board, National Archives.

<sup>22</sup>Kenneth W. Estes, *Marines Under Armor* (Annapolis, MD: Naval Institute Press, 2000), 4.

<sup>23</sup>Robert D. Heintz, *Soldiers of the Sea: The United States Marine Corps, 1775-1977* (Annapolis, MD: Naval Institute Press), 258–59.

<sup>24</sup>Ralph Earle, “Landing Operations of the Control Force,” Guest Lecture, Naval War College, December 11, 1922, Newport, Rhode Island.

<sup>25</sup>Fleet Problem No. 4, February 1924, Report, Blue Commander in Chief, U.S. Naval War College Microform #8, 43–47: “The Value of Having the Navy and Military Commanders in the same ship. General Cole’s Cooperation smoothed out many difficulties and prevented many mistakes. . . .”

<sup>26</sup>Ibid., No. 4, February 1924, Report, Commander in Chief, U.S. Fleet, R.S. Coontz, #26, “all of the submarines are so deficient in speed as to be of small use for fleet work except by accident of position.”

<sup>27</sup>Gerald D. Nash, *United States Oil Policy 1890–1964* (Pittsburgh, PA: University of Pittsburgh Press, 1968), 45.

<sup>28</sup>Harvey Lippincott, “The Navy Gets an Engine,” *Journal of the American Aviation Historical Society* (Winter 1961): 256–58.

<sup>29</sup>Eugene P. Trani and David L. Wilson, *The Presidency of Warren G. Harding* (Lawrence, KA: Press Regent of Kansas, 1977), 75.

<sup>30</sup>Remarks of Representative Bankhead, *Congressional Record*, House of Representatives, November 23, 1922, 1110.

<sup>31</sup>Testimony of Albert D. Lask, U.S. Congress, Joint Hearings on Commerce, U.S. Senate on Merchant Marine and House of Representatives, 67 Cong., 2<sup>nd</sup> Session, To Amend Merchant Marine Act of 1920, May 1922, 20.

<sup>32</sup>Letter, President Warren Harding to Representative Frank W. Mondell, June 20, 1922, 2, Ohio Historical Society Roll No. 176, Warren Harding Papers.

<sup>33</sup>7<sup>th</sup> Endorsement, U.S. Marine Corps, Major General Commandant to Chief of Naval Operations, Subject: Lighters for Landing Expeditionary Force, Transport of Artillery and Motor Transport with Expeditionary Detachments, September 23, 1922: “From a Marine Corps point of view, it is highly important that the lighters reach the beach and do

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so quickly, therefore they should have as much speed 45 practicable, be not solely dependent on towing boats, be unsinkable and furnish overhead protection from shrapnel and frontal protection from machine gun and rifle bullets.”

<sup>34</sup>U.S. Fleet Exercises, U.S. Naval War College Microform, Casualties Affecting Fleet Operations, U.S. Ports to Balboa, February 26, 1923, Fleet Problem 1, Submarines.

- R-1 22 Feb. Starboard engine broken down.
- R-2 20 Feb. bearing main engine burned out.
- R-3 12 Feb. both engines broken down.
- R-4 17 Feb. cylinder head cracked.
- R-10 19 Feb. cracked air compressor cylinder.

<sup>35</sup>Gary E. Weir, “The Navy, Industry and Diesel Propulsion for American Submarines, 1914–1940,” *Naval Engineers Journal* (May 1989): 211.

<sup>36</sup>Navy Department, General Board, No. 425, April 20, 1923, Serial No. 1136, RG 80, NA.

<sup>37</sup>H. M. Postan, D. Hay, J. D. Scott, *Design and Development of Weapons* (London, U.K.: Longmans, Green and Co., 1964), 135–36. See also Arthur R. Hezlet, *Aircraft and Sea Power* (New York: Stein and Day, 1970), 114: “. . . the most serious of the Admiralty’s complaints was that the Royal Air Force refused to allow their pilots to specialize in carrier operations.”

<sup>38</sup>Ashbrook Lincoln, “The United States Navy and Air Power: A History of the Naval Aviation, 1920–1934.” Ph.D. diss., University of California, 1946, 226.

<sup>39</sup>Stephen Peter Rosen, “New Ways of War: Understanding Military Innovation,” *International Security*, No. 1 (Summer 1988): 152.

<sup>40</sup>Geoffrey Till, “Airpower and the Battleship in the 1920s,” Bryan Ranft, ed., *Technical Change and British Naval Policy 1860–1939* (London, U.K.: Hodder and Stoughton, 1977), 121.

<sup>41</sup>Vincent Davis, *The Admiral’s Lobby* (Chapel Hill: University of North Carolina Press, 1967), 70.

<sup>42</sup>Merlo T. Pusey, *Charles Evans Hughes* (New York: Macmillan, 1951), 512.

<sup>43</sup>Jan M. Van Tol, “Military Innovation and Carrier History,” *Joint Force Quarterly* (Autumn/Winter 1997–98): 104.

<sup>44</sup>Joel R. Davidson, *The Unsinkable Fleet: The Politics of U.S. Navy Expansion in World War II* (Annapolis, MD: Naval Institute Press, 1996), 56–57.

<sup>45</sup>Campbell, Mark Allen, “The Influence of Air Power upon the Evolution of Battle Doctrine in the U.S. Navy,” M.A. thesis, University of Massachusetts, Boston, 1992; Robert O. Dudin and William H. Garzke Jr., *United States Battleships in World War II* (Annapolis, MD: Naval Institute Press, 1976), 185. For an opposing view, see Thomas C. Hone, Norman Friedman, and Mark D. Mandeles, *American and British Aircraft Carrier Development* (Annapolis, MD: Naval Institute Press, 1999), 168.

<sup>46</sup>Desmond Wilson, “Evolution of the Attack Carrier,” Ph.D. diss., Massachusetts Institute of Technology, August 1965, 27.

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<sup>47</sup>Ernest J. King, *U.S. Navy at War, 1941–1945*, official reports to the Secretary of the Navy (Washington, DC: Navy Department, 1946), 5.

<sup>48</sup>Norman Friedman, *Carrier Air Power* (New York: Rutledge Press, 1981), 32.

<sup>49</sup>Jan M. Van Tol, “Military Innovation and Carrier History,” 104.

<sup>50</sup>Gerald E. Wheeler, “Edwin Denby,” in Paolo E. Coletta, ed., *American Secretaries of the Navy*, vol. 2, 1913–1972 (Annapolis, MD: Naval Institute Press, 1980), 594.

<sup>51</sup>*History of Commander Service Force, United States Pacific Fleet*, 1949, 10, Breckenridge Library, Quantico, VA.

<sup>52</sup>Office of Naval History, *Commander in Chief, Pacific Fleet Service Force* (Washington, D.C., 1949), 377; Bernard Brodie, *A Guide to Naval Strategy*, 4<sup>th</sup> ed. (Westport, CT: Greenwood Press, 1958), 64.

<sup>53</sup>Robert Goralski and Russell W. Freebury, *Oil and War: How the Deadly Struggle for Fuel in WWII Meant Victory or Defeat* (New York: William Morrow, 1987), 155.

<sup>54</sup>Robert D. Heintz, “The U.S. Marine Corps: author of Modern Amphibious Warfare,” 186, Merrill L. Bartlett ed., *Assault from the Sea: Essays on the History of Amphibious Warfare* (Annapolis, MD: Naval Institute Press, 1983).

<sup>55</sup>J.F.C. Fuller, *The Second World War, 1939–45* (New York: Duell, Sloan and Pearce, c.1949), 207.

<sup>56</sup>Holland M. Smith, *Coral and Brass* (Washington, DC: Zenger Publishing, 1949), 227.

<sup>57</sup>F. Robert van der Linden, *The Boeing 247: The First Modern Airlines* (Seattle: University of Washington Press, 1991), 74, 101.

<sup>58</sup>John B. Rae, *Climb to Greatness: The American Aircraft Industry, 1920-1960* (Cambridge, M.A.: The MIT Press, 1968), 29–30; Peter W. Brooks, *The Modern Airlines* (London: U.K.: Putnam, 1964), 77–79.

<sup>59</sup>Robert Schlaifer and S. D. Heron, *The Development of Airplane Engines and Fuels* (Cambridge, M.A.: Harvard University Press, 1950), 11.

<sup>60</sup>Emory Land, Oral History, Columbia University, 124, referring to naval hierarchy: “They were always plenty enthusiastic about fighting ships but they forgot about supplying them.”

<sup>61</sup>Thomas Wildenberg, *Gray Steel and Black Oil: Fast Tankers and Replenishment at Sea in the U.S. Navy, 1912–1992* (Annapolis, MD: Naval Institute Press, 1996), 75.

<sup>62</sup>*Ibid.*, 165.

<sup>63</sup>Smith, *Coral and Brass*, 93.

<sup>64</sup>Samuel M. Robinson, Oral History, Columbia University: “The development of a light high-speed diesel engine was very dear to my heart.”

<sup>65</sup>GM Cleveland Diesel Engine Were Employed in 141 Submarines: H. L. Hamilton, Historical Record and Notes on the Development of Electro-Motive, n.d, Kettering University, GMI Alumni Foundation Collection, Flint, MI.

<sup>66</sup>John H. Bradley, *The Second World War: Asia and the Pacific* (Wayne, N.J.: Avery Publishing Group, 1989), 34.

<sup>67</sup>Bruce Denovo, *Teapot Dome* (Baton Rouge: Louisiana State University Press, 1962), 150.

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<sup>68</sup>Peter Fritsch, "Occidental Plans \$3.65 Billion Purchase," *Wall Street Journal*, October 7, 1997, 8.

<sup>69</sup>Lawrence Dunn, *The World's Tankers* (London, U.K.: Adlard Coles, 1980), 83: "Between 1931 and 1939 some 20 high-speed ships were built. . . ."

<sup>70</sup>Frederick C. Lane, *Ships for Victory: A History of Shipbuilding under the U.S. Maritime Commission in World War II* (Baltimore, MD: Johns Hopkins Press, 1951), 57.

<sup>71</sup>David H. Stralton, "Behind Teapot Dome: Some Personal Insights," *Business History Review* 31, No. 4 (1957): 394.

<sup>72</sup>Henrietta Larson, Evelyn Knowlton, and Charles Pople. *New Horizons, 1927-1950* (New York: Harper & Row, 1971), 420.

<sup>73</sup>Fletcher Pratt, *The Navy's War* (New York: Harper Brothers, 1944), 7.

<sup>74</sup>"Orange War Plan, Strategic Section," March 14, 1914 (revised March 1915), box 6, entry 289, General Board No. 420-2 War Portfolio 1902-1923, RG 80, NA.

<sup>75</sup>Samuel Eliot Morison, *The Two-Ocean War* (Boston, MA: Atlantic Monthly Press, 1963), 21; Edward S. Miller, *War Plan Orange* (Annapolis, MD: Naval Institute Press, 1991), 75; Bradley, *The Second World War*, 34; William Braisted, *The United States Navy in the Pacific* (Austin, TX: University of Texas Press, 1989), 687; Robert W. Love, Jr., *History of the U.S. Navy* (New York: Stackpole Books, 1992), 535; Stephen Roskill, *Naval Policies Between the Wars, 1919-1929*, vol. 1 (New York: Walker, 1968), 542; Emory Land, Oral History, Columbia University, 148, on fast tankers: "It permitted the fleet at sea, due to the speed of these tankers, which was equivalent to fleet speed, it permitted the fleet to operate a high speed and refuel without ever touching any port, island or otherwise, they were always ready for battle."

<sup>76</sup>Ernest J. King, *U.S. Navy at War, 1941-1945*, Office Reports to the Secretary of the Navy (Washington, DC: 1946, 217-24.