Feeding "Greyhounds"

Fueling the U.S. Navy
"Second to None" in the First World War Era

DAVID KOHNEN

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ABOUT THE AUTHOR

David Kohnen is the Captain Tracy Barrett Kittredge Scholar of War Studies and Maritime History. He earned his Ph.D. with the Laughton Professor of Naval History in the War Studies Department at the University of London, King's College London. He subsequently served as the founding director of the John B. Hattendorf Center for Maritime Historical Research and as executive director of the Naval War College Museum. In his published works, Kohnen focuses upon the history of the British Empire and its influence upon American sea power.

ON THE COVER:

U.S. Navy destroyer off Haulbowline Island as seen near the Headquarters, Western Approaches in Queenstown (Cobh) in southern Ireland, as seen and rendered in watercolor by Norman Wilkinson during the First World War.

Donated to the Naval War College by Dr. Nathaniel Sims and family

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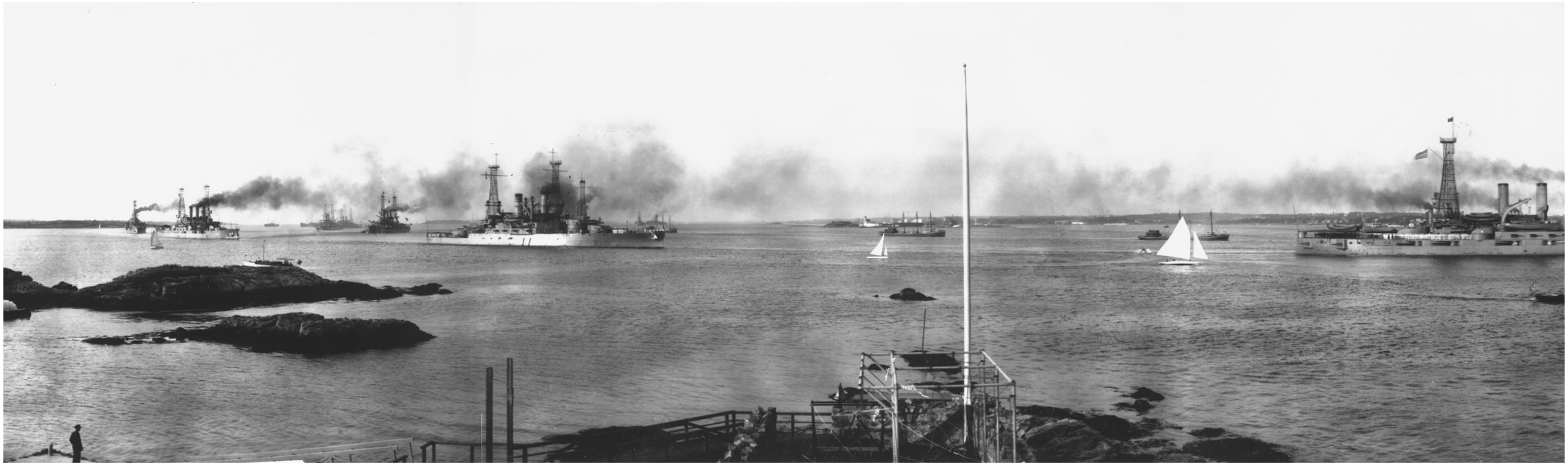


Coal fired battleships of the U.S. Atlantic Fleet preparing to sail from the Narragansett Bay to European Waters in 1910. (U.S. Navy photo)

In the age of wind and sail, warships had the capacity to operate for years at sea, or as long as the crew could endure under the limitations of available food and water. Yet, the introduction of coal-fired steam in the nineteenth century enabled warship designers to accommodate an increasingly extravagant capacity for bigger guns and thicker armor. Having managed the technological and doctrinal shifts from sail to coal-fired steam, the U.S. Navy again faced the tumultuous decision of abandoning coal in order to seize the opportunities associated with oil at the dawn of the twentieth century. Drawing inspiration from history in shaping the dream of a U.S. Navy "second to none," strategic visionaries within the ranks fought bureaucrats within the Navy Department to push the technological revolution from within in abandoning coal in favor of petroleum fuels during the First World War era.[1]

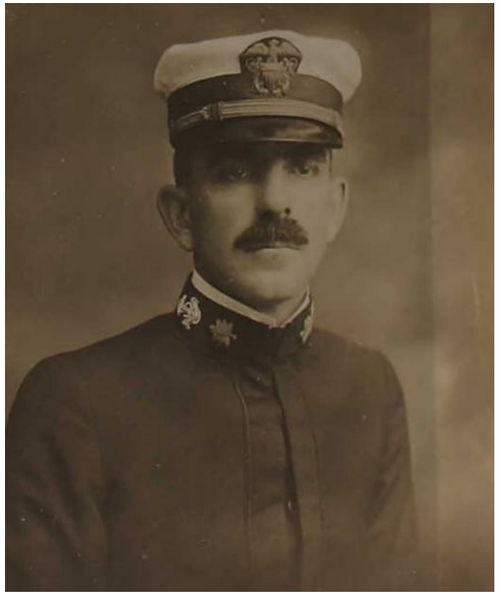
Coal enabled the construction of warships with thicker steel and heavier guns. Steam provided means to break free from the limits of the wind and oceanic currents, thereby providing greater maneuverability. Given the advantages of coal, engines and fuel bunkers on board also required additional space on board. As naval architects experimented with new means to expand the range of coal-fired ships, the U.S. Navy actively pursued other fuel options.[2] Petroleum provided an efficient and smooth burning means to seize the strategic advantage. The decision to shift from coal to oil also presented many significant challenges, which also divided practitioners within the ranks between those who clung to coal and those advocating the shift to oil.

The mindset within the ranks of the coal-fired American fleet progressively shifted to focus upon the future of petroleum fuels. Such a shift also provided means for the U.S. Navy to render rival coal-fired navies obsolete. Yet, shipyard owners and oily American entrepreneurs also speculated on the opportunities to profit from the debates ongoing within the Navy Department.[3] Considering the array of strategic challenges inherent with making the radical technological shift from coal to petroleum fuels, service practitioners debated the merits of making the transition in professional journals and in the cloistered confines of the Naval War College. The "Battleship Conference" of 1908 at the Naval War College, also fueled the rapid pace of technological change as the U.S. Navy shifted away from coal-fired to liquid fueled warships.[4]

Coal remained the standard for the major navies in the global maritime arena, as the U.S. Navy pursued the full potential of American sea power through petroleum fuels. The shift from coal coincidentally amplified the hierarchy between senior ranking officers and their junior subordinates. Younger officers within the ranks rallied to seek opportunities away from the coal-fired routines of the fleet in order to secure command in the smaller oil-fired warships of the U.S. Navy. The revolution from below bubbled, as practitioners debated the facts within the Proceedings of the U.S. Naval Institute – as early as the 1880s and into the coal-fired era of the Great White Fleet in the 1900s.

Considering the standard warship types among the fleets of Europe and Asia, American naval practitioners also recognized the fundamental strategic vulnerability of relying too heavily upon access to naval bases in order to replenish coal and other supplies. Among others, Lieutenant Henry C. Dinger articulated the perspective of other younger officers in many articles published in *Proceedings* and in the *Journal of the American Society of Naval Engineers*. He recognized strategic problems in the coal-fired U.S. Navy, challenging the Navy Department that the global "system of supply must be simple and move with dispatch."[5]

Following in the wake of other visionaries within the ranks of the U.S. Navy, Dinger challenged doctrinal assumptions and anticipated the influence of technical innovation upon future maritime strategy and naval operations in both peace and war. He originally entered the U.S. Naval Academy as an Engineering Naval Cadet with the Class of 1898. Dinger stood among the "Hustlers" on the Naval Academy Football team. Although



Lieutenant Commander Henry C. Dinger (U.S. Navy photo)

he earned a reputation for falling asleep in the classroom, Dinger excelled as an engineering student.[6] Because the U.S. Navy dissolved the administrative separations between engineers and the regular line Dinger entered the seagoing ranks as a line officer and reported for duty in the USS *Columbia* (Protected Cruiser No. 12). Dinger received his baptism of fire in Caribbean waters during the Spanish-American War. He then sailed in a variety of warships in the shallows of China, seeing action ashore and afloat during the Boxer Rebellion and Philippines Insurrection.[7]

Constant mechanical breakdowns inflicted more damage than enemy forces, and imperiled the warships of the U.S. Navy in combat operations. Disgusted by the poor technical state of American warships after service in the Caribbean and Asiatic, Dinger harangued the bureaus of the Navy Department for endangering American sailors with inferior warship designs, poor construction, and unnecessary gadgetry. He also advocated for the immediate transition from coal to oil. Given his radical views, Dinger drew the attention of Lieutenant William S. Sims. In 1903, he joined Dinger in compiling the "Fuel Oil Test Board Report."[8] The elder Sims helped his younger associate, Dinger by providing information from British friends. Sharing the common vision of an imperial federation between the British Empire and United States, Royal Navy Captain Sir John R. Jellicoe kept Sims apprised of transatlantic naval developments from Europe. Sims likewise shared information about developments in the Americas.

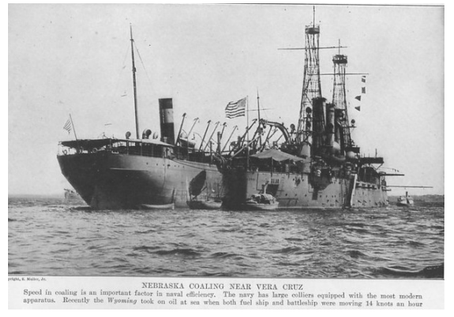
Transatlantic debate concerning the future of naval strategy coincided with discussions concerning the technical challenges inherent with shifting fleets from coal to oil-fired warships. Among others, the First Sea Lord, Sir John "Jackie" Fisher pressed the Admiralty and Parliament to change the Royal Navy into an oil-fired fleet.[9] The first oil-fired warship in the British fleet, the torpedo destroyer HMS *Spiteful*, proved successful during tests running against coal-fired warships. Spiteful of such success, members of Parliament and the British media voiced concerns about making a radical shift from coal to oil. Coal remained an important economic foundation within the British Empire, which Fisher acknowledged when he lamented, "oil don't grow in England."[10]

Anticipating the future competition for access to the vast oil reserves in the greater Persian Gulf region, Fisher amplified the Royal Navy presence in the Bab-el-Mandeb and Straits of Hormuz. He also pursued means to gain full control over the oceanic lines of communication from Europe to Asia by augmenting a series of "imperial fortresses" at Dover, Gibraltar, Alexandria, Singapore, and the Cape of Good Hope. Fisher referred to the Royal Navy bases as the "five keys that lock up the world."[11] He also understood the difficulty inherent with maintaining bases ashore. Fisher pressed the Admiralty to test experimental concepts for mixing coal with oil fuels on board the pre-Dreadnought, HMS *Hannibal*. The test proved disastrous. When shifting burners from coal to oil, British sailors scurried to stop the test as the warship filled with putrid black smoke. Yet, by 1904, Royal Navy attempts at moving from coal to oil simultaneously fueled the debates within the U.S. Navy.

Historical rivalries between the Royal Navy and U.S. Navy remained an underlying influence in the transatlantic race to shift from coal to oil. Personal friendships, like that of Jellicoe and Sims, ultimately proved vital for both navies

Battleship maneuvering to receive coal from USS Cyclops (Fuel Ship No 4). (U.S. Navy photo)

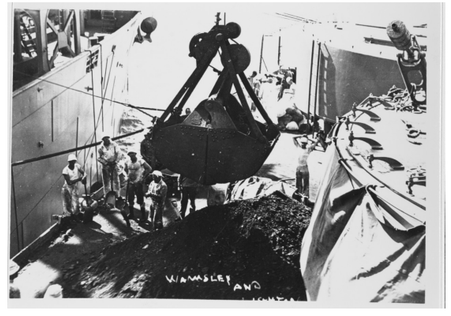
Colliers provided means to refuel coal-fired warships at sea. While refueling with coal in peacetime required many hours of labor both at sea and ashore, such operations proved difficult in poor weather and in simulated combat training. Colliers also served as a prime target for potential adversaries in wartime.



NEBRASKA COALING NEAR VERA CRUZ

Speed in coaling is an important factor in naval efficiency. The navy has large colliers equipped with the most modern apparatus. Recently the *Wyoming* took on oil at sea when both fuel ship and battleship were moving 14 knots an hour

Coaling a battleship at sea. (U.S. Navy photo)



Coaling at sea. (U.S. Navy photo)

Dropping dirty old coal on a once clean deck. (U.S. Navy photo)

Puck Magazine, "Coal is King in the Far East" (Library of Congress)

in efforts to refine the designs and technical procedures in the development of oil fired warships. During a visit to New York on board the armored cruiser HMS *Drake*, Jellicoe chided his friend, Sims, about the poor design of American warships. Jellicoe mused it would, "be most unfortunate should a British commander face the dilemma of having to sink an American in an unfair fight."[12]

Jellicoe jokingly prodded Sims to circumvent the bureaucratic barriers of the various bureaus of the Navy Department in efforts to harness the strategic advantages inherent with oil-fired warships. Although coal remained the preferred fuel for use in larger warships, Sims joined with fellow lieutenants commander Albert L Key and Albert P. Niblack in challenging the bureau chiefs of the Navy Department – and their associates among the captains of civilian industry – to force changes in the design of future American warships. Although President Theodore Roosevelt provided some encouragement for Sims and other reformers within the ranks, efforts to change the ways of the Navy Department also withered in the face of entrenched bureaucratic resistance and the backchannel dealings of admirals Washington L. Capps, Chief of the Bureau of Construction and Repair, and Charles W. Rae, Chief of the Bureau of Steam Engineering.

The costs involved with abandoning coal remained a central element in the counterargument against the proposed shift to oil. Fighting the coal industry while simultaneously challenging the bureaucratic tendencies of the Navy Department, Captain Bradley Fiske protected Sims and other "young Turks" in the fight against higher-ranking skeptics.[13] Challenging the brass hats and politicians, Sims jokingly referred to his close circle of allies within the ranks as the "Society for Repression of Ignorant Assumptions."[14] In correspondence,

Puck Magazine, "Columbia's Easter Bonnet" (Library of Congress)

President Theodore Roosevelt embraced the vision of American sea power, using the U.S. Navy as the driving force behind the "big stick" policy. He used the double meaning in referring to the gun, the Colt 45 "Peacemaker," in referring to "Our Navy, The Peacemaker." Roosevelt's coal-fired vision inspired many comedic portrayals of American sea power at the dawn of the twentieth century.

Sims declared his full commitment to lead the revolution from below by writing:

> I am playing this game to win or lose all … I am perfectly willing that those honesty holding views differing from mine should continue to live; but with every fiber of my corpse I loathe indiscretion and shiftiness, and where it occurs in high places, and is used to save a face at the expense of the vital interests of our great service (in which silly people place such a childlike trust), I want that man's blood and I will have it, no matter what it costs me personally.[15]

Providing some encouragement, the President of the Naval War College, Rear Admiral Charles S. Sperry, told Sims "you should consider coming here to pursue your ideas, as you are wasting your time with the [Navy Department]."[16] Sperry's predecessor, Rear Admiral Charles H. Stockton, also encouraged Sims to stand in the "light and not be afraid of the truth … the pathway of the reformer is hard and my experience at the War College leads me to sympathize with you in your efforts and rebuffs."[17]

Sims earned a reputation for violating protocols and for circumventing the traditional restraints, as imposed by the hierarchical administrative customs of the Navy Department. Following in the wake of Sims from within the Bureau of Steam Engineering, Dinger also ran against prevailing bureaucratic winds. He used clear logic and mathematically empirical language in advocating for immediate changes in his provocatively framed article, "The Engineering Situation in the U.S. Navy," which appeared in the *Journal of the American Society of Naval Engineers* in 1908. That same year, he published a book in which he outlined the technical requirements for use in the future design of oil-fired warships under the title, *Handbook for the Care and Operation of Naval Machinery*.

I AM PLAYING THIS GAME TO WIN OR LOSE ALL … I AM PERFECTLY WILLING THAT THOSE HONESTY HOLDING VIEWS DIFFERING FROM MINE SHOULD CONTINUE TO LIVE; BUT WITH EVERY FIBER OF MY CORPSE I LOATHE INDISCRETION AND SHIFTINESS, AND WHERE IT OCCURS IN HIGH PLACES, AND IS USED TO SAVE A FACE AT THE EXPENSE OF THE VITAL INTERESTS OF OUR GREAT SERVICE (IN WHICH SILLY PEOPLE PLACE SUCH A CHILDLIKE TRUST), I WANT THAT MAN'S BLOOD AND I WILL HAVE IT, NO MATTER WHAT IT COSTS ME PERSONALLY.

Leading the younger generation into a brave new era of oil-fired naval strategy and wireless technology, Dinger quietly enabled the U.S. Navy to develop tactical doctrine and technical procedures through experimentation within the oil-fired ranks of submarines, torpedo boats, and destroyers.[18]

In examining the problem on the gaming floors of the Naval War College, naval practitioners identified coal as a major strategic vulnerability in wartime. Gaming studies conducted in Newport informed efforts in Washington to improve coordination among the Joint Army-Navy Board and the various planning subdivisions of the Departments of War, Navy, and State. Naval bases ashore proved vulnerable to attack by armies or air forces. Given other competitors in the maritime arena, the U.S. Navy stood largely unprepared to defend distant coaling stations beyond the American hemisphere. The coal-fired U.S. Navy coincidentally required a network of large base facilities and garrison protection forces ashore, as warships maintained maritime lines of communication at sea. Garrisons in China and the Philippines proved vulnerable. Given the presence of foreign warships in distant waters, the local populations also disliked the intrusion of military and naval forces from the United States.[19]

Studies conducted at the Naval War College highlighted the vulnerabilities associated with maintaining distant land garrisons for the purposes of supporting naval bases and remote coaling stations. The constant rotation of colliers delivering the cumbersome fuel to distant stations also posed a significant vulnerability in the event of war.[20] Recalling the near disasters as experienced by coal-fired warships of the Great White Fleet during the circumnavigation cruise of 1907-1909, Lieutenant Commander Ernest J. King explained:

> when the fleet had difficulty in obtaining coal, the problems of supply had occupied increasing attention. As the United States Navy had no colliers of consequence, the Bureau of Supplies and Accounts constantly had to charter such vessels from the British, Germans, Dutch, and Norwegians in order to meet fleet-coaling schedules.[21]

Captain Frank Friday Fletcher recognized the vulnerability of the Great White Fleet and for marshaling auxiliary warships, colliers, and civilian vessels to fall under the "Fleet Train" system of the U.S. Navy. King described Fletcher as a, "very able officer, chiefly to be remembered for having started the Fleet Train."[22]

The Fleet Train system evolved from the necessity of supporting warships deployed in distant waters. The bureaucracy of the Navy Department, however, hindered the operations of the Fleet Train. Having developed the system, Fletcher ultimately attained four-star rank as the Commander in Chief, Atlantic Fleet. Under his authority, the Fleet Train served as an equivalent to the subordinate fleet organizations and the "type commanders" of battleships, cruisers, destroyers, torpedo boats, and submarines.[23] Fletcher also recognized the importance of integrating the Fleet Train with combatant warship operations, as the auxiliaries required protection on voyages into contested waters.

Assistant Secretary of the Navy Theodore Roosevelt at the Naval War College in 1897. (U.S. Navy photo)

Having supported the expansion of the coal-fired fleet, Theodore Roosevelt delivered a major speech at the Naval War College in which he outlined his vision for the future of American sea power in 1897. Detractors considered his vision misguided. The following year, Roosevelt exploited the opportunity to demonstrate the potential of American sea power during the "splendid" Spanish-American War. He later used the U.S. Navy as the foundation for his "big-stick" policy and gunboat diplomacy as President of the United States at the dawn of the twentieth century.

Refueling ships proved vital to American efforts to pursue sustained naval operations of extended duration in distant waters. In the event of war, colliers at sea and coaling stations ashore naturally stood as vulnerabilities. Coaling at sea also required significant planning and logistical coordination, particularly in combat conditions. Ships also had to stand stationary for extended periods during coal refueling operations. Mobile refueling proved impractical, if not impossible, in poor weather or in combat conditions.[24] Coal-fired warships had the advantages of steam, although higher speeds and larger guns also carried the prices associated with cleaning the ship, managing the expenditure of fuel during long voyages, maintaining access to refueling bases ashore.

Considering the potential challenges presented by the navies of Europe and Asia, the U.S. Navy hastened efforts to shift from coal to oil. "The use of oil for fuel is being constantly extended by the German navy," as U.S. Navy Professor Philip R. Alger noted in *Proceedings*, a "special transport for supplying oil to ships at sea or in port has been finished and another is about to be

President Theodore Roosevelt arrives at the Naval War College on 22 July 1908 (U.S. Navy photo)

built."[25] As oil remained a scarce commodity on the European continent, the Americans held a decisive strategic advantage in both coal and oil resources. Retired Rear Admiral Alfred Thayer Mahan explained the importance of using navies to attain strategic advantages against foreign competitors. "I am frankly an imperialist in the sense that I believe that no great nation, should henceforth maintain the policy of isolation which fitted our early history."[26]

Given the problematic history of imperialism, Mahan recognized oil as an important factor in considering the future of American sea power in relations with the empires of Europe. He coined the phrase, "middle east," while examining the vulnerable position of the Royal Navy in the region.[27] He also recognized the inevitable shift from coal as another potential flashpoint, as the Anglo-Dutch and French competition for control over oil resources from the Near East in the Levant to the Far East of the Asiatic created the conditions for a major war among the Europeans. By contrast, vast coal and oil reserves in the American hemisphere provided unique advantages for the U.S. Navy. In particular, oil held the potential for enabling the Americans to gain supremacy over the coal-fired navies of Europe and Asia.[28]

Striking Oil

As the U.S. Navy progressively abandoned coal in favor of oil, the maintenance of land bases appeared strategically unnecessary and potentially dangerous. Liquid fuels also simplified the strategic challenges involved with global naval operations, reducing the dirty task of defending worldwide coaling stations ashore. Oil provided the advantages of portability and reliability.[29] Sims stood among the key innovators in efforts to develop tactics for use in the oil-fired warships envisioned for the future. His perspective also reflected the direct influence of close British associates, including the First Sea Lord, Fisher, and Rear-Admiral Sir John R. Jellicoe. Sharing an interest in developing oil-fired warships for the Royal Navy, Fisher and Jellicoe faced resistance to shift away from coal within the Admiralty. In private correspondence, Fisher and Jellicoe encouraged Sims to lead the U.S. Navy pursuit of oil-fired warship technology. The informal special relationship between Jellicoe and Sims reflected other efforts within the Royal Navy and U.S. Navy ranks to foster collaboration in maritime affairs.[30]

Sims envisioned a transatlantic alliance through the informal spirit of Anglo-American friendship. Similar notions appeared in the writings of such strategic thinkers as Sir Julian Corbett and Mahan.[31] President Theodore Roosevelt shared the Sims vision of an Anglo-American naval alliance. Roosevelt also installed Sims as skipper in the coal-fired pre-Dreadnought *USS Minnesota* (Battleship No. 22) – an assignment usually reserved for officers of a higher lineal seniority, or of lower seniority in the rank of captain. Notably, Sims stood seventieth on a list of 120 officers in the rank of commander

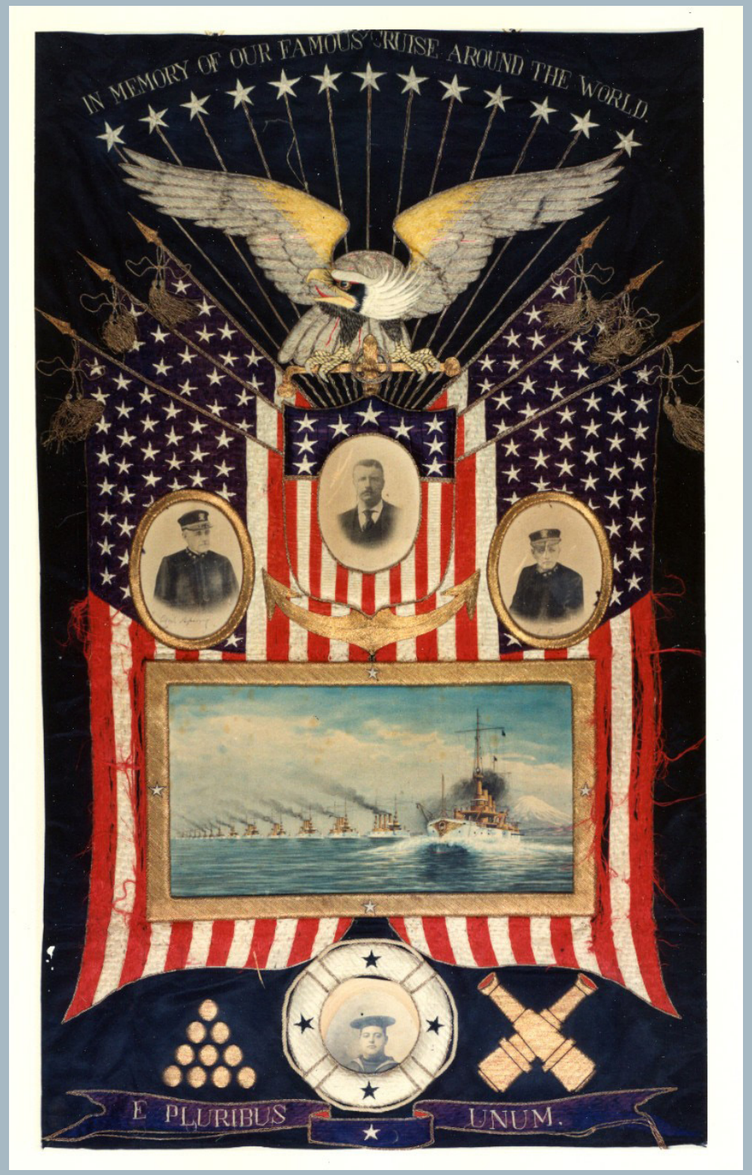
Oil Painting, Skeerdonuthin, by Henry Reuterdahl

Donated to Naval War College by Dr. Nathaniel Sims and family

Envisioning the future, Commander William S. Sims described the innovations he observed after a visit to the HMS Dreadnought to his friend Henry Reuterdahl. Standard caliber main guns and coal-fired engines with the added potential capacity for firing boilers with oil also stood among the more significant aspects in the Dreadnought design. Sims inspired Reuterdahl to paint an American concept for a future Dreadnought in a painting. The ship was never actually constructed, although the image inspired by Sims as rendered by Reuterdahl as the "Skeerdonuthin" also appeared in McClures Magazine – helping to build public support for the future construction of American battleships.

at that time.[32] Within the service, Captain William S. Benson warned Sims that the navy had "established a dangerous precedent of giving battleships to Commanders."[33] By contrast, Third Sea Lord, Jellicoe warmly encouraged Sims. "I congratulate you and the United States Navy … I hope if you do come over [to Britain] I shall see you."[34]

As skipper of the *Minnesota*, Sims sailed into the limelight of the international media in command of an American battleship. During a port visit in the fall of 1910, Sims attended a series of formal banquets held at the Savoy Hotel and at Guildhall in London. As he toasted the close cultural and strategic connections between the British Empire and United States, the international media featured the informal remarks of Sims as proof of a secret Anglo-American alliance.[35] The New York Times characterized the Anglo-American celebrations at Guildhall as a, "Love Feast." "Had that speech been made by any other officer below the rank of Captain in the Atlantic Fleet, except Sims," one U.S. Navy officer suggested to the New York Times, "dollars to doughnuts that no attention would have been paid to it, but coming from Sims, who despite his rank and youth is one of the best known officers in the service, made it



Silk souvenir of the Great White Fleet

Sailors of the Great White Fleet visited exotic ports of call, which made the difficult and often horrific experience of sailing on board coal-fired warships seemingly worthwhile. Veterans of the cruise returned with tattoos and exciting sea stories, which also proved useful for U.S. Navy recruiting. In the Asiatic, American sailors frequently purchased souvenirs – including beautifully rendered silk banners with their portraits affixed. Sailors frequently sent these souvenirs home to mothers, wives, and girlfriends. In this example, the portraits (from left to right) include Rear Admiral Charles S. Sperry, commander of the Great White Fleet, President Theodore Roosevelt, and Rear Admiral Robley D. Evans, who also commanded the fleet during its voyage.

Former President Theodore Roosevelt celebrated at Guildhall in London on 31 May 1910.

Library of Congress

President Theodore Roosevelt envisioned a future maritime consortium among the naval powers. In particular, he used the Monroe Doctrine as the foundation for the "Roosevelt Corollary," which emphasized the defense of the American hemisphere while also placing other imperial powers on notice. With American sea power on the rise during the international race to shift from coal to oil in naval affairs, Roosevelt also fostered closer ties between the British Empire, Imperial Japan, and the United States. Sharing this vision of "imperial federation," the British staged a major celebration of Roosevelt at Guildhall in central London shortly after he left office.

Commander William S. Sims on board USS Minnesota during exercises in 1910.

Donated to Naval War College by Dr. Nathaniel Sims and family

Having missed the cruise of the Great White Fleet, Commander William S. Sims received command in the battleship Minnesota for the cruise of the Atlantic Fleet to European waters in 1910. His appointment for command sparked criticism within the U.S. Navy, as Sims stood too junior in rank for a battleship command.

"Love Feast" at Guildhall in 1910

Donated to Naval War College by Dr. Nathaniel Sims and family

SIMS'S CHIEF BO'SUN FOR AN ALLIANCE, TOO

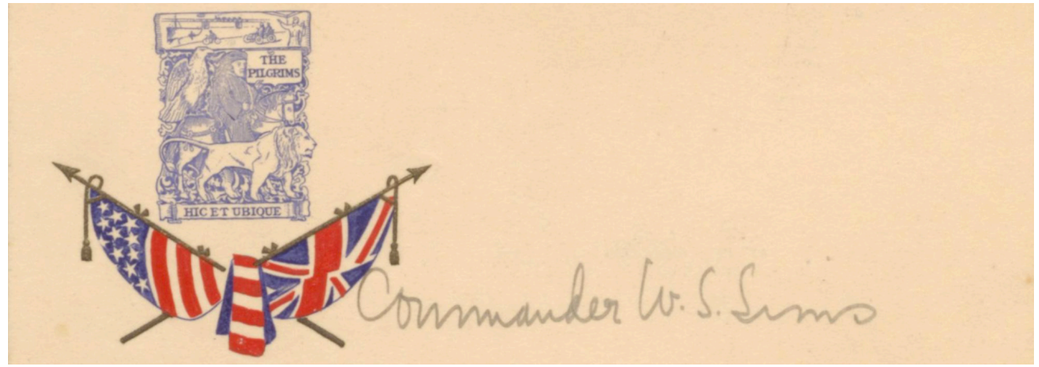
British Heard from the Man Before the Mast at That Guildhall Love Feast.

MAY WE STAND TOGETHER

In Peace and War, Said the Bo'sun—London Report of the "Last Drop of Blood" Speech.

Above: "Love Feast" Headline in New York Times on 19 December 1910

Left: Guildhall banquet menu and program, 1910 (William S. Sims Papers, Library of Congress)



Name card for Commander William S. Sims from Guildhall diner. (Library of Congress)

different."[36]

For his remarks concerning a future Anglo-American naval alliance, Sims received early detachment orders from command in *Minnesota.* The Guildhall remarks place Sims at odds with the prevailing policy of the American departments of State, War and Navy. Earlier service as President Theodore Roosevelt's aide further alienated Sims, as the subsequent administrations of William H. Taft and Woodrow Wilson faced challenges from the empires of Germany, Austria, Russia, and Japan.[37] In the spring of 1911, Sims received orders to detach from *Minnesota* with orders to report for the Naval War College "Long Course" in Newport, Rhode Island.[38] Assignment to the Naval War College almost seemed punitive, and Sims viewed it as a major career setback. Sims wrote to his wife, Anne, "things will blow over to such an extent that I may get some duty that I would like better than the War College – something in closer touch with practice and less on the theoretical side."[39]

Receiving training as an engineer at the Naval Academy, Sims was ill-equipped to articulate the inherent potential benefits of a global maritime alliance among the Anglo-American navies. Recognizing the deeper complexities of culture and politics, he treated the Naval War College assignment as an opportunity to consider the deeper historical foundations of naval strategy. Through this approach, he recognized fresh means to harness new technical innovations in modern warship design, such as the transition from coal to oil.[40] Sims examined the potential for using oil to refuel ships at sea without having to stop and in the absence of access to facilities ashore. With the First World War threatening American interests in Europe and Asia, Sims observed from afar as the major foreign navies continued sailing on the steam generated by coal. Coal-fired fleets engaged in battles such as those off the Falklands, Dogger Bank, and Jutland.[41]

Sims recognized the strategic vulnerability of the Imperial German Navy, which lacked suitable access to sustain tactical operations beyond the range of an accessible coaling station ashore. The requirement to replenish coal also hindered the commerce raiding operations of the "auxiliary cruisers" SS *Kronprinz Wilhelm* and SS *Prinz Eitel-Friedrich* off Hampton Roads and the dashing actions of the cruiser SMS *Emden* in the Indian Ocean. Conversely, Captain Felix von Lückner also concentrated on locating enemy colliers. Sailing from China with the Imperial German East Asia Squadron, Vice-Admiral Maximilian von Spee threatened British and French coaling stations until being stopped at the Battle of the Falklands.[42]

Sims recognized the U.S. Navy held the strategic advantage as compared with the coal-fired ships comprising the various fleets as listed within such sources as *Jane's All the World's Fighting Ships*. Close personal ties with the Royal Navy commander of the Grand Fleet, Jellicoe, also enabled Sims to keep accurate notes on the status of the European navies. Jellicoe and Sims maintained regular correspondence, sharing information as trusted friends. Given gentlemanly rules of keeping confidence, Jellicoe and Sims disregarded bureaucratic

protocols of secrecy – sharing details about new developments in strategy, tactics, and naval technology.[43]

The British retained the strategic advantage in the war at sea, as Sims advised fellow U.S. Naval practitioners about the fundamental weakness of German naval strategy. Although the Royal Navy also suffered from restricted access to coal, the British and French navies of the *Entente* powers held the strategic advantage with access to a global network of coaling stations whereas access to coal remained more difficult for the Central Powers of Imperial Germany, Austria-Hungary, and Ottoman Empire. Strategic reliance on coal essentially crippled the navies of the Central Powers – limiting fleet operations along the European and Mediterranean coastlines. Indeed, the Imperial German Navy faced few other options than focusing on diesel-powered torpedo boats and oil-burning submarines.[44]

Although the British enjoyed the strategic advantages of a long established global network of coaling stations, Sims also considered these distant garrisons vulnerable to attack from the land and air. Oceanic lines of communication between Anglo-French naval coaling stations had further proven particularly vulnerable to the commerce-raiding tactics, which characterized naval strategy among the Central Powers. Sims concluded, "the British will win, but not quickly enough to keep the battle in their neck of the woods." "Our Navy may expect to be a referee once the fight happens in our neck of the woods," Sims warned, "sometimes the errant punch lands square in the face of the referee."[45]

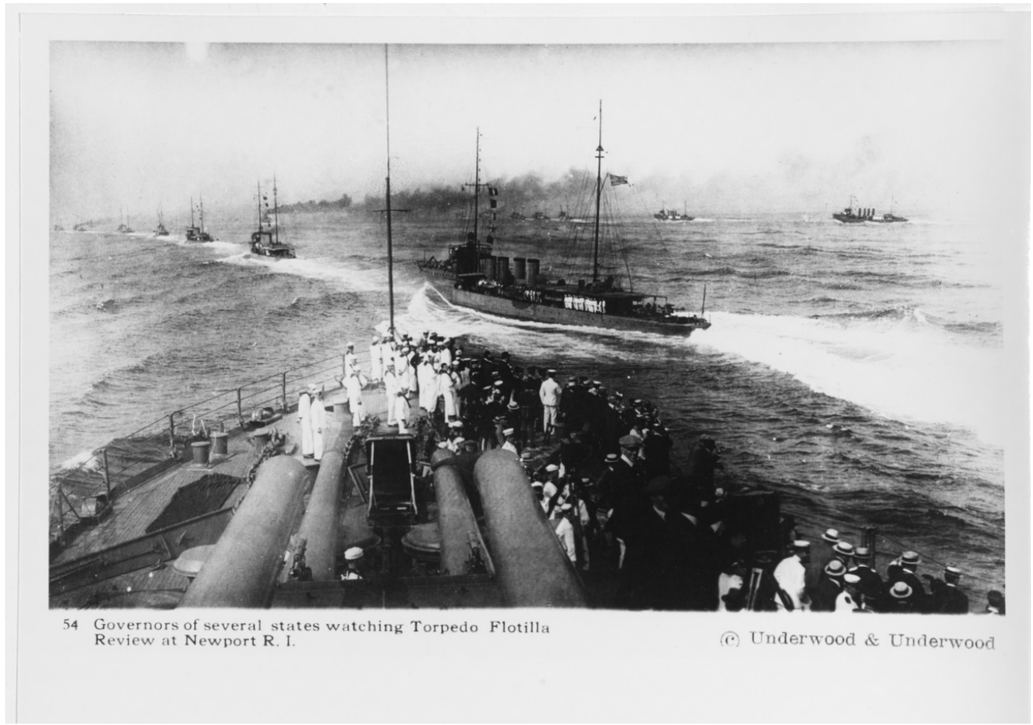
Strategic neutrality in the war at sea provided opportunity for the U.S. Navy to hasten efforts to make the transition to oil. Standard Oil Company further fueled Navy Department efforts to develop petroleum fuels for use in larger warships, as the USS *Paulding* (Destroyer No. 22) paved the way for the construction of the "Standard-type" *Nevada*-Class battleships after 1910. The former president, Roosevelt, also lectured about the advantages of oil, as the Wilson Administration grappled with the costs involved with constructing warships featuring new and untested innovations ranging from wireless technology to petroleum fuels. Roosevelt justified the costs associated with the effort by highlighting the peacetime strategic function of navies under the title of "Our Peacemaker, The Navy."[46]

GIVEN GENTLEMANLY RULES OF KEEPING CONFIDENCE, JELLICOE AND SIMS DISREGARDED BUREAUCRATIC PROTOCOLS OF SECRECY – SHARING DETAILS ABOUT NEW DEVELOPMENTS IN STRATEGY, TACTICS, AND NAVAL TECHNOLOGY.

Roosevelt influenced the Navy Department to throw caution to the wind in embracing the strategic advantages inherent with petroleum. As other navies continued sailing under coal-fired black clouds, the cousin and nephew of Roosevelt – Assistant Secretary of the Navy, Franklin D. Roosevelt – also joined forces with Virginia Senator, Claude B. Swanson. Together, they pushed Navy Secretary Josephus Daniels to join the effort in marshaling Congressional support for the oil-fired vision of a U.S. Navy "second to none" under the Naval Acts of 1915 and 1916.[47] In theory, U.S. Naval expansion offset the strategic prospect of direct tactical engagement in the First World War. Increasing interest in oil-burning warships also created opportunities for Sims and his associates to apply knowledge acquired during studies at the Naval War College.

Second to None

Battleship command remained a critical career milestone for the rising stars of the U.S. Navy. Promotion to admiral frequently hinged upon meeting the implied prerequisite of commanding a battleship. However, new opportunities to circumvent the traditional ladders leading to flag rank emerged with the "promotion by selection" board process as instituted by Navy Secretary Daniels. Perhaps to his chagrin, the selection board system opened opportunities for rebels within the ranks, like Sims, to compete for promotion to flag rank – based upon professional merit and future potential. Simply remaining on active service no longer guaranteed a promotion under the traditional lineal precedence system, which dominated the culture of the American



Destroyer and Torpedo Boat Flotilla, Atlantic Fleet (U.S. Navy photo)

Commodore William S. Sims selectively recruited skippers to command the oil-burning warships of the Destroyer and Torpedo Boat Flotilla, which he organized in 1914. Among other upstarts among the skippers were the future stars of the U.S. Navy, including Lieutenant Commanders Ernest J. King, Harold R. Stark, Harry E. Yarnell, Joseph K. Taussig, and William F. "Bill" Halsey, Jr. On the flotilla staff, Sims recruited Commander William V. Pratt and along with his fellow Naval War College graduates, Lieutenant Commander Dudley W. Knox and John V. Babcock. U.S. Marine Captain Pete Ellis also served in the staff under Sims.

naval services until the First World War era.[48]

Having been relieved under a cloud after the Guildhall remarks as skipper of a coal-fired battleship, Sims anticipated the likelihood of fading into retirement at the Naval War College. Always seeking opportunity to test new ideas, he requested orders to an unglamorous assignment as the commodore of the Atlantic Fleet Torpedo Boat and Destroyer Flotilla in 1914.[49] Sims also considered the assignment a strategic opportunity to influence the younger generation, experiment, and develop tactics in smaller warships for future use in the main battle line. Destroyermen proudly referred to their threadbare warships as "tin cans." Built for speed, the destroyers also attained the reputation for being the "greyhounds" of the fleet.[50]

Battleship forces of the U.S. Navy guarded strategic positions to offset the prospect of foreign attack from the sea, in accordance with the color-coded joint plans that characterized the U.S. Army philosophy of holding fortified positions ashore. In the meantime, the oil-fired destroyers and torpedo boats of the Atlantic Fleet offered freedom for swift experimentation outside the conservative protocols of coal culture, which characterized the battleship fleet. Sims exploited the culture of the destroyermen, encouraging a freewheeling spirit among the younger skippers.[51] He initially embarked the flotilla staff in USS *Dixie* (Destroyer Auxiliary No. 1), at anchor in the shadows of the Naval War College. The Aide for Naval Operations, Rear Admiral Bradley Fiske, and the Director of the Bureau of Navigation, Rear Admiral Victor Blue, proved

especially firm supporters by arranging orders for personnel specifically requested by Sims.[52] Commander William V. Pratt reported as chief of staff to help identify and recruit additional personnel for the flotilla. Sims focused on Naval War College graduates, or those with potential for completing such education while assigned to the flotilla staff, including lieutenant commanders Dudley W. Knox and John V. Babcock.[53]

As the coal-fired engines in *Dixie* proved unreliable, Sims leaned heavily upon Knox and Babcock to find another flagship for the flotilla. Knox recommended the USS *Birmingham* (Light Cruiser No. 2), as it stood available for refit as a flagship in dry dock in Newport News, Virginia. During the overhauls in *Birmingham*, Knox collapsed from exhaustion, ulcers, and vertigo, which resulted in his being removed from sea duty and placed on extended medical leave at Burton Farm in New Hampshire.[54] Languishing in pain with ulcers and fighting against the inherent boredom of forced convalescence, Knox dutifully advised Sims to replace him with Lieutenant Commander Ernest J. King. At that time, King stood in command as skipper in the destroyer USS *Terry* (Destroyer No. 25).

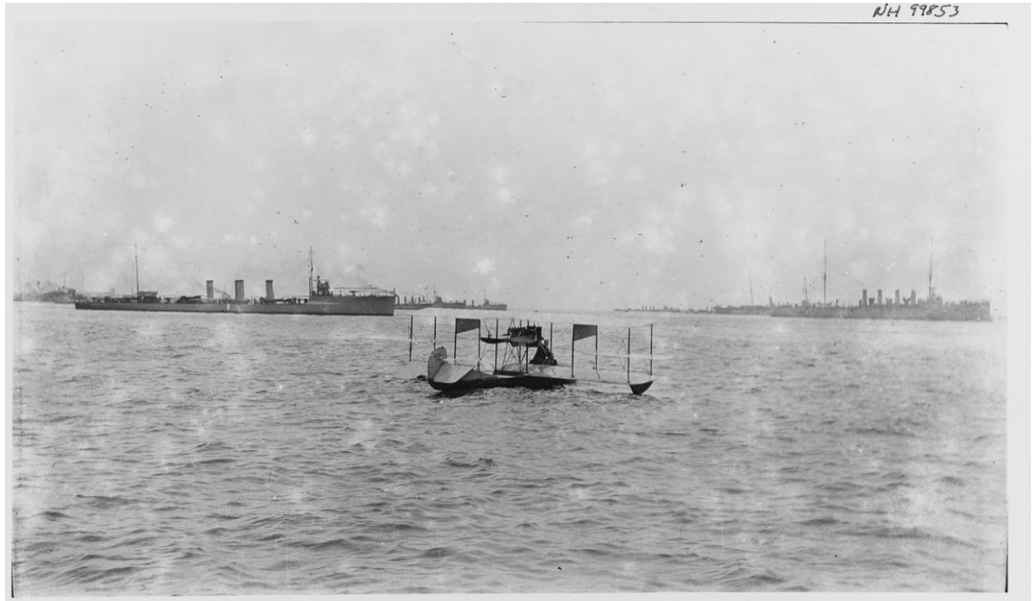
King served under the immediate operational command of Commodore Henry T. Mayo, supporting convoy operations against Mexican insurgents off Veracruz in 1914. King recalled taking the helm in *Terry* while receiving oil while trailing the Naval Auxiliary Ship (NAS) *Arethusa*.[55] U.S. Naval Auxiliary Master Arthur M. Whitton had perfected this method of refueling as skipper in *Arethusa* during experimental maneuvers with Lieutenant William Ancrum in USS *Warrington* (Destroyer No. 30). Sailors in the *Arethusa* boasted in *Our Navy Magazine* that:

> we are down here at Lobos Island Mexico, having proceded with all possible speed (9 knots when we don't have a break down) from Port Arthur, Texas, with some of the liquid fuel required for the use of our Destroyers in this Mexican affair. Came all prepared for action, having eight lines of 2-inch copper hose, flexible, connected to the main outlet and ready to shoot it into the Destroyers a mile a minute clip, nisides our big 6-inch flexible copper hose which we had connected to our starboard side outlet, ready to give them a broadside of the liquid fuel in case of emergency. The *Arethusa* is the queen of the Fuel Oil Carriers (there is only one at present) and she is some sea-going the boys not even getting time to get a shave or haircut in port before we are on our way again.[57]

Portrait of Captain William S. Sims

U.S. Naval War College Art Collections

Captain William S. Sims stood for a portrait in anticipation of retiring at that rank. While attending the "long course" at the Naval War College after the Guildhall controversy, Sims assumed his career had reached its zenith. He commissioned the artist, Nathan M. Miller, to render this portrait in 1913. Much to his later surprise, Sims received orders away from the coal-fired warships of the regular line with the assignment to organize the oil-fired Torpedo Boat and Destroyer Flotilla of the Atlantic Fleet. In 1914, assumed the symbolic title of "commodore" upon assuming command of the flotilla in Newport.



Seaplane operating in tandem with Sims Flotilla destroyers, 1915 (U.S. Navy photo)

The bustling narrative highlights the inherent flexibility of oil, which enabled U.S. Naval forces to sustain destroyer operations in the Veracruz campaign. Stationary refueling remained the primary method, although *Arethusa* also conducted towed underway replenishment with the bow to stern "Chinese landing" method.[58] The towed approach placed both ships in potential danger of collision, which inspired efforts to develop procedures for ships to transfer materials while running abeam at uniform speeds.

Experience off Veracruz provided opportunities for practical experimentation for the younger skippers in the destroyers of the Atlantic Fleet. King wished to remain on station in command of *Terry* in 1914. With Mayo's approval, Sims lured King away from the scene with an enticing signal that "you should consider coming to the flotilla to lend us a hand in the schemes we are trying to develop."[59] Sims wanted younger officers who were willing to break rules and arranged the early detachment orders for King to leave command in *Terry* and assume command in USS *Cassin* (Destroyer No. 43). Upon reporting for duty, King discovered *Cassin* in complete disrepair and with a greenhorn crew at the Boston Naval Shipyard.[60] He then received orders to report for duty immediately under Sims on the Destroyer Flotilla staff in *Birmingham*. "I have taken a personal and selfish view of this matter of command," King carefully wrote Sims, "I am ready to come to the *Birmingham* if, in your opinion, I ought to come."[61] "I can quite understand your desire to get some experience

Commander Ernest J. King shortly after service in the Sims Flotilla during service as the Strategic Plans Officer on the staff of Admiral Henry T. Mayo in the Atlantic Fleet. (U.S. Navy photo)

Service with the Sims Flotilla propelled King to the head of the pack as a destroyer division leader by 1916. He completed the Naval War College staff officer's course and reported to Admiral Henry T. Mayo as the Strategic Plans Officer that same year. He also carried collateral duty as the Chief Engineering Officer of the Atlantic Fleet in 1917.

in command [and will] try and get a man to take Knox's place," Sims told King, "the efficiency of the whole flotilla of course comes ahead of that of any one boat or individual, I may have to ask you to help us out."[62]

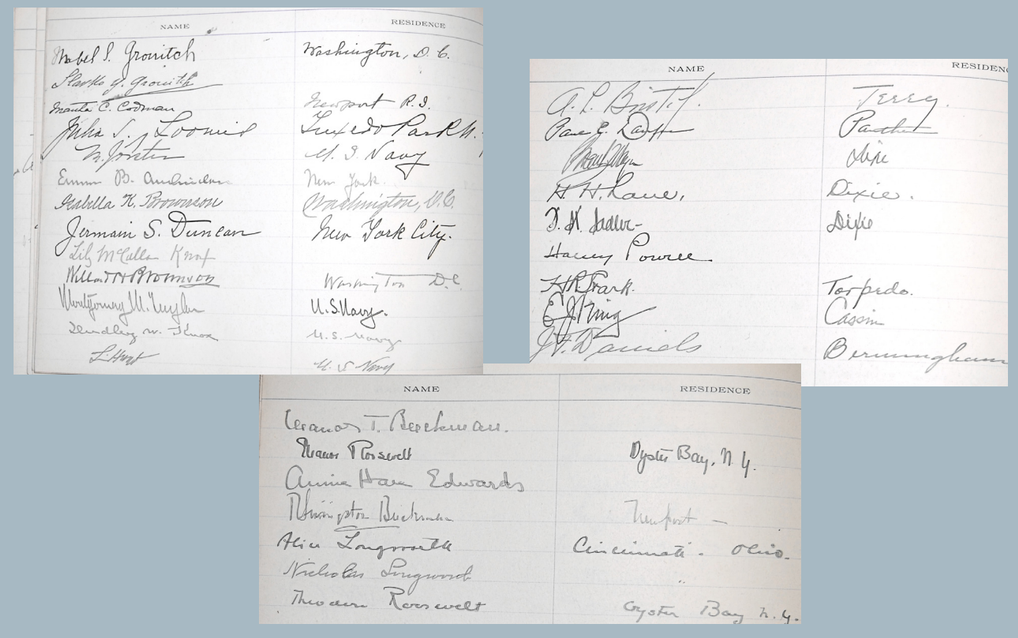
Sims offered a devil's choice for King to balance command in *Cassin* with the arduous minutia of the staff. For carrying double duty, Sims later rewarded King with a recommendation to higher command, characterizing him as a "very competent and reliable officer … sound judgement and confident… imaginative with marked initiative and professional knowledge."[63] Sims issued similar laudatory reports for other skippers in the flotilla, including Harold R. Stark, Harry E. Yarnell, Joseph K. Taussig, and William F. Halsey, Jr. Collaboration among the destroyer skippers inspired Sims to characterize them as a "band of brothers."[65] Sims and his skippers in the Atlantic Fleet Destroyer Flotilla used the "war college afloat" method to develop rough procedures for refueling at sea without stopping.[66] Sims held regular meetings with his destroyer skippers, participating in tabletop war games, professional discussions, and strategic debates about esoteric points of maritime history.[67]

Teamwork characterized relations among personnel within the intimate ranks of the Atlantic Fleet destroyer flotilla. Together, they developed revolutionary tactics and procedures for broader application in the fleet. Among other innovations, Sims and his destroyermen perfected methods for maneuvering without visual signals by developing a wireless code system for transmitting orders with fewer than thirty-one individual words.[68] Sims and his destroyermen also recognized the full potential of oil. In tabletop exercises, they roughed out procedures for transferring oil between warships without stopping. The coal-fired warships of the world stood vulnerable to the nascent potential of oil, which theoretically had the capacity to be transferred through a hose while warships sailed at a nominal and uniform speed.[69] These experiments coincided with the progressive demise of coal within the U.S. Navy. Given the

Guestbook of the Destroyer and Torpedo Boat Flotilla, Atlantic Fleet.

Donated to Naval War College by Dr. Nathaniel Sims and Family

The Sims Flotilla drew significant attention, as the members of the flotilla developed doctrine and procedures for use in the future oil-fired American fleet. Among other signatures appearing in the guestbook kept by Sims on board the flotilla flagships Dixie and Birmingham are those of Theodore Roosevelt, Josephus Daniels, and skippers Arthur L. Britsol, Ernest J. King, Harold R. Stark, Harry E. Yarnell, and other future stars of the American fleet.



Uniform of Rear Admiral William S. Sims

On display at the Naval War College Museum

Label from Stovel and Mason of Saville Row in London, as found in the inside pocket of the bespoke uniform made for Rear Admiral William S. Sims in 1917.

Navy Secretary Josephus Daniels and the CNO, Admiral William S. Benson, directed Sims to sail incognito for meetings at the Admiralty in London. He received orders to leave his uniform behind, as his mission remained secret when Sims sailed with his aide, Babcock. Four days after the American declaration of war against Imperial Germany on 6 April 1917, Sims arrived without a uniform in London. His friend the First Sea Lord, Admiral Sir John R. Jellicoe, made special arrangements for Sims and his aide to procure uniforms at the finest bespoke tailors in Saville Row.

Model presented to Captain William S. Sims by the skippers of the Destroyer and Torpedo Boat flotilla of the Atlantic Fleet on board the flagship, Dixie.

Donated to the Naval War College by Dr. Nathaniel Sims and Family

As a gesture of respect and appreciation for Sims, the skippers of his destroyer flotilla commissioned the construction of a model that encapsulated all their wildest ideas about the future design of oil-fired American destroyers. Of note, the mast configuration features wireless arrays and a rudimentary radio direction finding antenna to aft. This warship was never actually built, but it reflects the willingness of Sims to entertain unconventional — if not crazy — ideas and innovative concepts of warship design.

Binoculars of William S. Sims, as used in the First World War era.

Donated to the Naval War College by Dr. Nathaniel Sims and Family

Sims used these binoculars in the First World War era. After his death, the family presented the binoculars to Franklin D. Roosevelt. In turn, as a gesture of transatlantic solidarity, Roosevelt gave the Sims binoculars to Prime Minister Winston S. Churchill during the Atlantic Conference — the clandestine meeting at sea during which Roosevelt and Churchill reaffirmed the principle of "freedom of the seas" in August of 1941. After the Allied victory in the Second World War, Churchill returned these binoculars to the Sims family.

SIMS AND HIS DESTROYERMEN ALSO RECOGNIZED THE FULL POTENTIAL OF OIL. IN TABLETOP EXERCISES, THEY ROUGHED OUT PROCEDURES FOR TRANSFERRING OIL BETWEEN WARSHIPS WITHOUT STOPPING.

naval neutrality strategy of President Woodrow Wilson and "Navy Second to None" legislation, American naval practitioners committed fully to the future vision of an oil-burning fleet – second to none – as the First World War raged on foreign shores and on the high seas.

Cheer Up

For nearly twenty years, Sims advocated the construction of battleships and battle cruisers featuring oil-fired turbines and large guns of uniform caliber. He refined these arguments at the Naval War College and demonstrated the value of such education through practical application in the Atlantic Fleet destroyer flotilla. Secretary Daniels wanted to close the Naval War College to establish a unified Army-Navy war college closer to Washington, D.C.The first Chief of Naval Operations (CNO), Admiral William S. Benson also supported the idea of consolidating army and navy war colleges in Washington, D.C.[70] Although the Atlantic Fleet anchorage at Narragansett Bay remained an important anchorage close to the North Atlantic lines of communication and the key targets between Boston and New York, Daniels and Benson noted plans to shift the fleet anchorage to Hampton Roads in conjunction with Joint Army-Navy War Plans. Under the circumstances, Daniels and Benson questioned the costs involved with maintaining the Naval War College in Rhode Island.

Sims completely rejected the idea of consolidating the army and navy war colleges, as armies operated differently than navies within the global maritime arena. He further noted the fundamental differences between military and naval tactical requirements. He also emphasized the inherent benefits of keeping the Naval War College far enough away from the political culture while still being located within traveling distance to Washington. Taking issue with critics within the seagoing ranks, Sims challenged fellow practitioners to embrace the strategic role of education as being the best peacetime means to prepare for the rigors of war. Published in the *Proceedings* in the spring of 1916 under the cheeky title, "Cheer Up!! There is No Naval War College," Sims accused seagoing professionals of suffering from "wholly unpardonable ignorance."[71]

Always seeking the role of provocateur, Sims frequently ran afoul of fellow naval professionals within the seagoing ranks and their bureaucratic superiors at the Navy Department. He overcame rivals by superior performance at sea, his willingness to take risks, and with the confidence derived from intense studies of history and the naval profession. Beyond these assets, Sims also sought the unique qualifications and experience of commanding oil-fired destroyers. Given his singular expertise, Sims earned the opportunity to serve as the commissioning skipper in the first of the "Standard Type" battleships – USS *Nevada* (Battleship No. 36).[72] Dubbed by Sims as the "Cheer Up Ship," the battleship *Nevada* marked the first in a series of oil-fired American warships, which essentially rendered the coal-fired navies on the global stage obsolete.[73]

Sims faced major challenges in organizing the crew to bring the experimental oil-burning battleship into the fleet. The crew ultimately earned the nickname, the "Cheer Up Ship."[74] Sims used *Nevada* as a stage to demonstrate the interrelationship of technical innovation with the fundamental role of the Naval War College as the strategic center of higher educational functions within the service. Procedures for employing the new technological advantages associated with oil evolved from the early classroom discussions and gaming experiments conducted on the campus in Newport and in the waters off the Narragansett Bay. His stature within the service also reflected the divisions among those focused upon the American sphere of influence versus those more willing to follow the vision of "looking outward" into the global maritime arena.[75] Connections with foreign naval professionals enabled Sims to anticipate potential challenges just over the horizon from Europe. His friend, Jellicoe, empowered Sims to influence American perspectives about the First World War. In particular, Jellicoe gave Sims key details about the Battle of Jutland. Sims reported the intelligence to the Navy Department and testified about the strategic ramifications in Congress.[76] Given his earlier connections with President Theodore Roosevelt and the Guildhall controversy, Sims offered unique strategic perspectives on the question of American neutrality as the First World War raged in Europe and Asia.

Experience in command of oil-fired warships set Sims apart within the seagoing ranks of the U.S. Navy. After thirty-six years on active service, Sims had actively participated in the technical transition from coal to oil. By 1916, he stood among ninety captains on active service in the fierce bureaucratic battles to secure fewer than eleven vacancies for flag rank within the U.S. Navy.[77] Although Secretary Daniels remained skeptical of the results, the first board for "promotion by selection" nominated Sims for the appointment to rear admiral in August of 1916. Fiske told Sims that the selection board "could not have done otherwise without precipitating a storm that would have wrecked the keeping of selection in navy hands."[78]

Having relinquished command in Nevada, he received orders for temporary duty at the Naval War College. In the fall of 1916, Sims helped recreate the Battle of Jutland on the gaming floors of the Naval War College in October and November.[79] The President of the Naval War College, Rear Admiral Austin Knight, presided over the games with the Commander of the Atlantic Fleet, Admiral Henry T. Mayo, frequently observing from above. Among others monitoring the Jutland games were lieutenant commanders Dudley W. Knox, Ernest J. King, Harold R. Stark, and William F. Halsey, Jr. Lieutenant Holloway H. Frost used the data to compile an astonishingly accurate account of Jutland.[80] Using the Frost report on Jutland as the basis for testimony in Congress, Sims emphasized the critical importance of setting correct priorities for the future construction of American warships.[81]

Among many other conclusions, Sims viewed the Battle of Jutland as an excellent case study in the limitations of coal-fired fleets. With inadequate access to coaling stations, the German High Seas Fleet also had nowhere to go in efforts to break through the cordon of the Grand Fleet under Jellicoe.[82] Sims referred to the Battle of Jutland as a "skirmish" where the British held the strategic advantage. While the Grand Fleet had access to coaling stations worldwide, the German High Seas Fleet, on the other hand, lacked means to sustain operations beyond European waters. Sims explained, "control of the sea is accomplished when the enemy's fleet is defeated or 'contained;' and the German fleet has been contained since the beginning of the war, is now contained, and doubtless will remain so."[83]

The German High Seas Fleet sat idly in port under the guns of the Grand Fleet, as the U.S. Navy monitored the situation from afar. As the Americans studied the battles ongoing in Europe, the German submarine *SM U-53* raised the stakes with an unannounced visit to the Naval War College on 7 October 1916.[84] The Germans cordially invited the Americans on board during a brief port call. Amplifying the purpose of the stunt, the *SM U-53* then sank a number of Anglo-French and Dutch flagged merchant ships in the approaches to the Narragansett Bay – demonstrating the vulnerability of American defenses. The *SM U-53* visit to the Naval War College followed a series of provocations by the Germans, which also fell within the broader context of American naval neutrality strategy, U.S. Navy efforts to secure the strategic advantage, and related efforts to hasten the transition of the American fleet from coal to oil.[85]

Coincident with the Jutland studies ongoing at the Naval War College, the U.S. Navy conducted experiments to refine procedures for transferring oil between ships straddling a refueling vessel without stopping. Three weeks following the dramatic surprise visit of the *SM U-53,* the U.S. Navy conducted the first successful underway transfer of oil with ships running alongside in approaches to the Narragansett Bay within sight of the Naval War College. As U.S. Navy forces prepared for an anticipated German submarine offensive in American waters, Rodgers worked with Commodore Albert Gleaves to organize the

Imperial German Navy Lieutenant Hans Rose welcomes U.S. Navy Lieutenant Thomas A. Symington, aide to the President, Naval War College, on board the submarine SM U-53 at Buoy 2 at Newport, Rhode Island. (U.S. Navy photo)

experiment. Having replaced Sims in the Atlantic Fleet Destroyer Flotilla, Gleaves supervised the rehearsals with his skippers, lieutenant commanders Charles A. Austin and Charles A. Blakely, respectively of USS *Fanning* (Destroyer No. 37) and USS *O'Brien* (Destroyer No. 51).

Historians have completely overlooked the first successful transfer of oil between warships running parallel. Although oil transfers happened before between stationary warships, the U.S. Navy perfected the rudimentary procedures for conducting such operations with ships running together on parallel courses. With Austin and Blakely maneuvering in *Fanning* and *O'Brien* alongside, Master Henry T. Merriweather, Naval Auxiliary Service, held the collier USS *Jason* (Auxiliary Collier No. 12) in a steady course while transferring fuel to the destroyers *Fanning* and *O'Brien* straddling alongside. The official account submitted to the President of the Naval War College explained that the two:

> Destroyers were oiled simultaneously, one on either side of the *Jason* and towed by the *Jason* at speeds varying from fought to eight knots. Several methods of handling the lines were tried with the result that the best method was determined to be a ten inch tow line from well forward in the fuel ship lead to a point well forward in the destroyer and one from a point well aft. The distance of the destroyer from the fuel ship was regulated by the length of the bow breast and was fixed at about forty feet. Under these conditions with the stern breast slack, the destroyers making turns for one knot less speed than the fuel ship and using just enough helm to keep the bow breast taut, everything went smoothly ... on this occasion an average of over 14,000 gallons of oil per hour was delivered to each destroyer.[86]

During three days of tests, *Jason* sailed in between the two warships running abreast to transfer oil in the first recorded underway oil refueling in naval history between 20 and 23 October 1916. Notes for the report submitted to the Navy Department included those reviewed and endorsed by the Commander, Atlantic Fleet, Mayo, as compiled by his Fleet Engineer, Lieutenant Commander Ernest J. King. Experience conducting underway refueling later informed the subsequent operations involving King and Lieutenant Commander Chester W. Nimitz.[87]

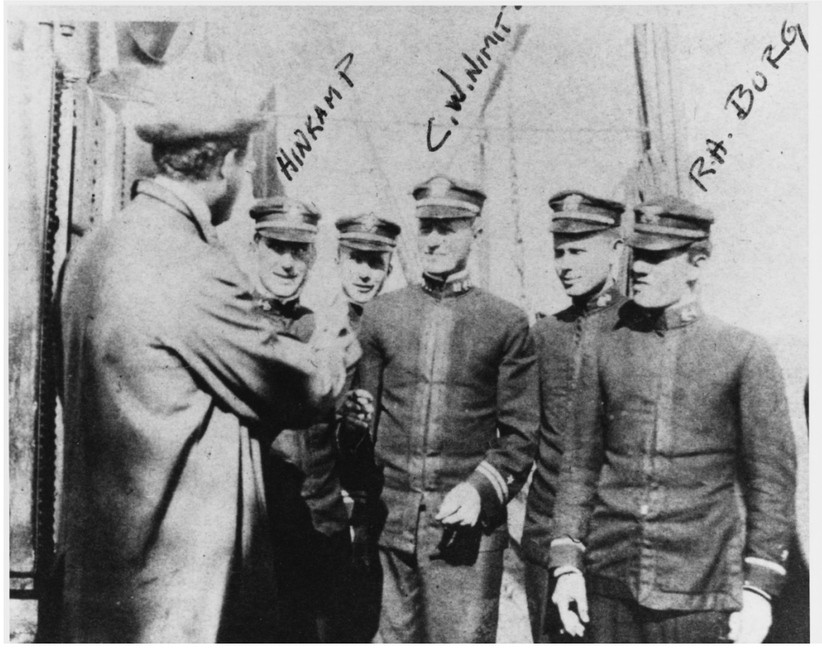
Bloody Fingers

Coincident with the *Jason* experiments in the Narragansett, the U.S. Navy expanded the oil refueling fleet with another experimental warship. The first oil refueling ship of the class, USS *Kanawha* (Auxiliary Oil Ship No. 1) stood idly at anchor off Newport, as technical difficulties rendered the ship unavailable to participate in the experimental refueling operations of *Jason* in October of 1916. On the same day of the first oil transfers by *Jason* in the Narragansett Bay on 23 October, Lieutenant Commander Henry C. Dinger commissioned the *Kanawha* Class oiler, USS *Maumee* (Auxiliary Oil Ship No. 2), at Mare Island Shipyard in California on 20 October. Having advocated for transition from coal to oil in professional papers and journal articles for nearly two decades, Dinger strongly believed that supply vessels represented the strategic backbone of the fleet. "Bases of supply," Dinger argued, "must be something more than mere geographical points having strategic position." He characterized supply ships as warships in that "what is provided within that vessel and facilities it has for bringing this to those who are in need are important considerations."[89]

Early submarine with wireless mast deployed, as signed by Fleet Admiral Chester W. Nimitz. (U.S. Navy photo)

Dinger participated in the development of the *Kanawha* Class, emphasizing the importance of flexibility in design. He stressed the importance of endurance for extended operations in remote waters. The hull design remained standard, although he specifically lobbied for command in *Maumee*, which featured the radical addition of diesel engines for main propulsion. The first warship equipped as such, Nimitz reported on board with the double duty as Executive Officer and Chief Engineer. Together, Dinger and Nimitz had something to prove in *Maumee*. The newest warship in the fleet also fell under the command of a younger generation that was willing to experiment, fostering creativity among the crew, and relished serving on the razor's edge. However, they also drew from a rich sense of American naval tradition and the fundamental influence of history upon sea power.

Nimitz stood among the best diesel engineers in the service, seasoned after seagoing commands in destroyers and submarines. Fluent in German, Nimitz studied German engineering journals and corresponded with their authors to develop unique mastery of the latest trends in diesel technology. Given this unique experience, Nimitz engineered developments in U.S. Navy diesel propulsion. His visits to the Blohm and Voss Shipyard in Hamburg and the Diesel Factory in Nuremburg provided additional perspective,



Lieutenant Chester W. Nimitz, USN, standing at center. (U.S. Navy photo)

as Nimitz supervised the navy contract work by engineers at the Busch-Sulzer Brothers Diesel Engine Company in St. Louis, Missouri.[90] With orders to report for duty in *Maumee* in the summer of 1916, Nimitz lost his ring finger when demonstrating the diesel engine design to an audience of curious observers. Sticking his hand in the wrong place as he lectured the radical principles of diesel engine design, the machine relentlessly ripped his finger away. Surprised when the engine suddenly seized to a halt, Nimitz stood shocked as the audience gasped. His choker white uniform covered in blood, Nimitz stoically kept talking about the benefits of diesel propulsion. He lost his finger, but his Naval Academy ring from the Class of 1905 saved his hand.[91]

The industrial dangers of the naval service required practitioners to maintain a stoic sense of humor when faced with an unexpected disaster. Unperturbed by the sudden loss of an appendage, Nimitz dutifully reported to Dinger for duty in *Maumee* as ordered. Scouring every inch of the ship for potential flaws, Dinger and Nimitz placed the diesel engines online. They rallied the crew through shakedowns and made the passage from the Pacific through the Panama Canal into the Caribbean by January of 1917. Upon arrival, *Maumee* reported under the general authority of the Commander, Atlantic Fleet, Mayo. As their primary mission centered upon the delivery of oil to warships, the *Maumee* crew struggled with experimental procedures and untested equipment.[92] Dinger and Nimitz failed in numerous attempts to replicate the earlier successes of *Arethusa* and *Jason*. Having identified serious technical problems with the experimental refueling gear in *Maumee*, they offered recommendations while requesting technical assistance from higher command.[93]

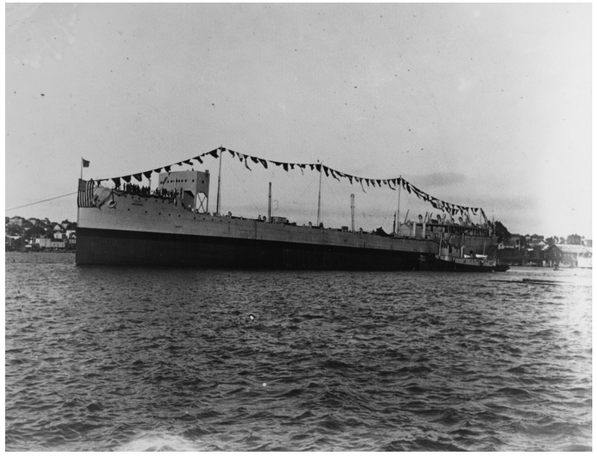
Fueling and supply ships fell under the overall strategic control of the Navy Department, wherein the CNO theoretically coordinated global logistical movements through the geographic fleet commanders. These three-star admirals carried authority over the seagoing warships in the Asiatic, Pacific, and Atlantic. Working in collaboration with local U.S. Army garrison commands, the two-star U.S. Naval district commanders held responsibility for security over logistical support facilities ashore. Acting in strategic coordination with the CNO and the Operations Navy (OpNav) staff at the Navy Department, Mayo's Atlantic Fleet staff concentrated on operational plans, working in close conjunction with Rear Admiral William Ledyard Rodgers and the Fleet Train staff to coordinate logistics for the tactical seagoing forces in the Atlantic. As the *Maumee* crew fixed technical problems and pioneered new means to transfer oil in the troubled waters of the Atlantic, the U.S. Navy stood on the brink of war following the revelations of an Imperial German against the United States.

SIMSADUS

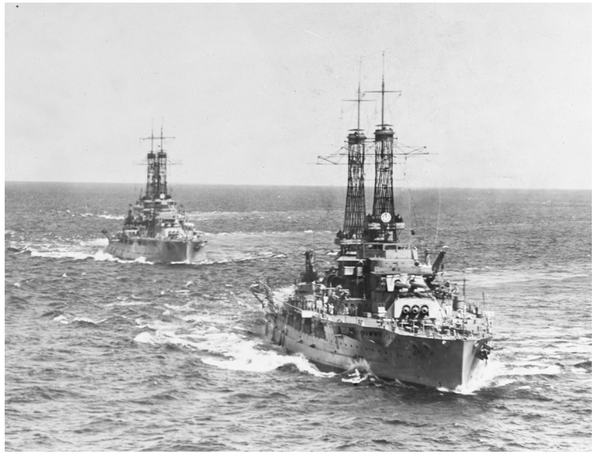
Naval War College gaming studies of Jutland

Sailors of Nevada lounging on the fantail with the "Cheer Up Ship" stage set up for the "Foc'sle Follies" with Sims in command in the summer of 1916. (U.S. Navy photo)

Lieutenant Commander Henry C. Dinger stands to far left next to Lieutenant Glenn B. Davis and Lieutenant Chester W. Nimitz of the recently commissioned oil refueling ship, USS Maumee. (U.S. Navy photo)



USS Maumee (Auxiliary Fueling Ship No. 2). (U.S. Navy photo)



USS Nevada leading the way with USS Oklahoma trailing behind during Atlantic Fleet exercises. (U.S. Navy photo)

highlighted the strategic vulnerability of coal-fired warships. Because the British and German fleets were reliant upon access to facilities ashore in order to refuel with coal, Sims emphasized the importance of hastening construction of an American oil-burning navy "second to none."[97] Following his impressive testimony about the battle before Congress in December of 1916, Sims received orders to assume duty as the Commandant of the Narragansett Bay Naval Station in January of 1917. He then received notice of his prospective appointment to assume additional duty as the President of the Naval War College. Still serving in the rank of captain, in February Sims assumed double duty as the base commander of the Atlantic Fleet anchorage at Narragansett Bay and as President of the Naval War College.[98]

Among other key priorities, Sims focused upon the tasks inherent with developing fleet battle doctrine for the purposes of refining tactical procedures for making the transition from coal to oil. The older coal fired battleships of the U.S. Navy remained the backbone of the American fleet, although the newer oil-fired Standard-Type battleships of the *Nevada* and *Pennsylvania* Classes represented the future of American sea power. Sims supervised the Naval War College staff in examining means to maneuver oil-fired battleships on extended operations – far from coaling stations ashore. He also considered the requirements inherent with operating coal-fired fleets in conjunction with oil-burning warships.

Given the logistical requirements associated with sustained operations, Sims emphasized the critical strategic importance of oil refueling ships in anticipation of future fleet operations. Sims encouraged the Navy Department to transform water-carriers and colliers into oil refueling ships to support the new Standard-Type battleships of the *Nevada* and *Pennsylvania* Classes. To these ends, the Navy Department pursued the development of the *Kanawha* Class of oil refueling ships. Fast and stable, the *Kanawha* Class featured many innovations in design and represented the futuristic vision of the U.S. Navy. Being first in the class, however, *Kanawha* also proved unreliable in operations.

Technical problems beset the *Kanawha* Class, as untrained crews pioneered procedures for operating in an oil-fired fleet. Awaiting the *Kanawha* and *Maumee* as the ships maneuvered to the steadier seas of the Caribbean, Rodgers pressed colliers into experimental service in efforts to perfect the oil refueling tactics off the Narragansett Bay. From a storied family in American naval history, Rodgers acted with autonomy, as Commander of the "Fleet Train" organization in the Atlantic.[99] Coincident with efforts to organize logistical forces for action, Sims also received the secret mission of coordinating transatlantic collaboration between the Royal Navy and U.S. Navy in March of 1917.

German terrorist attacks and espionage inside the United States forced President Woodrow Wilson to shift from a strategy of naval neutrality and begin preparations for direct U.S. Naval involvement in the European war. American newspapers published the contents of a telegram transmitted by the German Foreign Minister, Arthur Zimmermann, which revealed an outlandish German plan to supply arms and support a Mexican invasion of the United States. In addition, the Germans encouraged the Imperial Japanese to attack American forces in the Pacific and ashore in Asia. Facing few other options, Wilson directed Daniels to order the CNO, Benson, to mobilize the U.S. Navy to support joint defensive plans, as articulated in the War Department plan BLACK.[100]

From Maine to Guantanamo Bay, U.S. Naval warships steamed to Hampton Roads to rally under flag of Mayo and assemble the Atlantic Fleet. In anticipation of a formal declaration of war, the skippers of *Kanawha* and *Maumee* received orders to replenish in Galveston and refuel destroyers sailing from the Caribbean to Hampton Roads.[101] Under the Joint Army-Navy Board scheme to coordinate the fleet mobilization in defense of American waters under Plan BLACK, command of U.S. Naval forces fell to the commander of the Atlantic Fleet. As approved by Secretary of the Navy Josephus Daniels and the CNO, Admiral William S. Benson on 21 March 1917, the original strategic plan placed Mayo in global control over operational forces as the Commander in Chief, U.S. Fleet (CinCUS).[102] Having already undercut Mayo by sending Sims to London, Daniels refused to empower Mayo in assuming the functions of CinCUS on 9 April.[103] That same day, Sims suddenly appeared in British and American newspapers in two-star rank as a "welcome visitor."

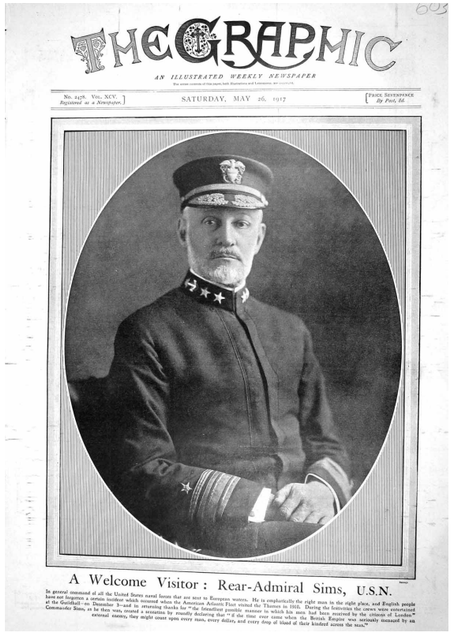
Atlantic Fleet staff on board the flagship USS Pennsylvania (Battleship No. 38) in the First World War.

Courtesy, Ernest J. King family

Sitting at center, the Commander, Atlantic Fleet, Admiral Henry T. Mayo held strategic responsibility for defending the American eastern sea frontier under War Plan BLACK. In the event of a war against a European adversary, he also stood prepared to assume the global responsibilities associated with the functions of Commander in Chief, U.S. Fleet (CinCUS). Mayo chose the new oil burning battleship Pennsylvania as his flagship in 1916. He specifically recruited younger officers with experience in oil-burning submarines and destroyers. Sitting the left, the young ensign in green is an aviation qualified officer. Sitting over his shoulders to the far left are the future President of the Naval War College, Commander William S. Pye, followed by Captain Ernest J. King. Commander John S. McCain is seen standing above King's shoulder.

The ambiguous role of Sims greatly complicated the calculus of command in relation to the seagoing forces. He arrived in London the day after Daniels decided against instituting the CinCUS authorities under Mayo. In postwar accounts, Daniels whitewashed the failure of Benson to work more closely with Mayo in organizing the strategic flow of operations at the European front.[104] Daniels and Benson undermined their own chain of command by circumventing Mayo and the Atlantic Fleet staff. Caught between the Admiralty and the Navy Department, Sims faced few alternatives in attempting to balance combined strategy with dissimilar tactical command organizations in efforts to coordinate Anglo-French and American naval forces in European waters. He also faced the inherent challenges of being the first American flag officer to arrive at the front, as American forces struggled to organize for war.[105]

As Daniels and Benson dithered with politics while dabbling in strategy, Mayo and Sims successfully negotiated means to organize U.S. Naval forces to define clear operational requirements in mobilizing logistical means to support tactical forces at the front. Daniels and Benson lost sight of the strategic problems by inserting themselves in tactical decisions. Sims carried the burden of coordinating combined operations in the absence of a coherent American strategy, as Mayo navigated the stormy waters


THE GRAPHIC

AN ILLUSTRATED WEEKLY NEWSPAPER

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A Welcome Visitor: Rear-Admiral Sims, U.S.N.

In general command of all the United States naval forces that are sent to European waters. He is emphatically the right man in the right place, and English people have not forgotten a certain incident which occurred when the American Atlantic Fleet visited the Scottish capital on December 3—and Admiral Sims broke his "the friendliest possible manner to which his men had been received by the citizens of London." Commander Sims, as he then was, created a sensation by proudly declaring that "if the time ever came when the British Empire was seriously menaced by an external enemy, they might count upon every man, every dollar, and every drop of blood of their kindred across the sea."

Rear Admiral William S. Sims on the cover of the London illustrated newspaper, The Graphic, in May of 1917. (U.S. Navy photo)

British readers celebrated the news when the arrival of Rear Admiral William S. Sims appeared in the newspapers. Although his actual role remained ambiguous, Sims became the de facto American commander in European waters after a series of mistakes and misunderstandings within the Navy Department. Within the ranks of the U.S. Navy, Sims had recently assumed command in the rank of captain as the President of the Naval War College. His sudden appearance in two-star rank came as a complete surprise to many ranking officials within the departments of War, Navy, and State.

of joint army-navy defensive strategy as the Atlantic Fleet commander. Among the worst violations of the chain of command in the history of the U.S. Navy, Daniels and Benson failed to provide sufficient support to Sims in London while simultaneously undercutting Mayo. Daniels later attempted to explain his actions by suggesting that Mayo was too old for the job and that Sims "worked in such close cooperation with the British fleet [I] sent a younger admiral [Sims] as commander of it."[106]

Lacking a clear strategy to drive global U.S. Naval operations, Daniels and Benson lowered themselves from focusing on fixing major strategic problems and asserting direct tactical command over individual destroyer skippers. Observing with Mayo on the Atlantic Fleet staff, King recalled the micro-mismanagement of Daniels and Benson.[107] As the Fleet Engineer on the Atlantic Fleet staff, King was totally caught by surprise when Benson transmitted direct orders in electronic communications to Commander Joseph K. Taussig to sail from Yorktown to New York with following orders to Boston. "Evidently, things are very much upset at headquarters," Taussig logged that "we must continue to expect to be buffeted around in all manner of ways."[108]

Given his orders, Taussig assumed the functions of commodore in leading the first wave of six destroyers to sail for European waters.

King scurried from Hampton Roads to New York and Boston in hasty efforts to help provision and procure equipment for Taussig's warships to make the transatlantic crossing. Departing on 28 April, Taussig also had no idea where exactly he was going, as he received sealed orders which remained unopened until he reached the open sea. Only then did Taussig learn of his assignment to report to the senior Royal Navy commander in Queenstown (Cobh) Ireland. Taussig and his small flotilla sailed without support from a refueling ship, scratching a northerly transatlantic route. He conserved as much fuel as possible in navigating waters under expected threat of German commerce raiders and submarines. Taussig lacked training in antisubmarine warfare, although the Royal Navy provided significant assistance to the U.S. Navy. The First Sea Lord, Jellicoe, encouraged the Commander of Western Approaches, Rear-Admiral Sir Lewis Bayly, to amalgamate Royal Navy and U.S. Navy forces under a singularly focused antisubmarine command.[109]

"For a valued friend and ally from a comrade in arms," as inscribed by Admiral Sir John R. Jellicoe, as First Sea Lord and as presented to his American friend, Sims, in the spring of 1917.

Donated to Naval War College by Dr. Nathaniel Sims and Family

Seeking unity of command in fighting common enemies, Admiral Sir John Jellicoe masterfully manipulated the transatlantic relationship by influencing the appointment of his American friend, Sims, as the ranking U.S. Naval commander in European waters.

Mayo and the Atlantic Fleet staff scrambled to expand the number of destroyers assigned to Queenstown, simultaneously coordinating the Fleet Train in efforts to develop the transatlantic convoy system. Mayo recognized the importance of focusing on the oceanic lines of communication by synthesizing operations under his immediate control in American waters with those of Sims in European waters. British propagandists meanwhile trumpeted the arrival of American warships in European waters. Arriving on 4 May, Taussig personified the amalgamated character of American society, as he was born in Germany forty years earlier when his father, Edward, commanded U.S. Naval forces in European waters. Due to his earlier service with the First Sea Lord, Jellicoe, and later under Sims in the Atlantic Fleet Destroyer Flotilla, Taussig helped foster strong foundations for future Anglo-American naval collaboration.[110]

Hastening to dispatch additional destroyers to the European front, Mayo and the Atlantic Fleet staff placed priority on organizing the refueling forces of the Fleet Train. On 10 May 1917, Mayo discussed the mission of sending destroyers across the Atlantic with Gleaves and Rodgers. Their Fleet Engineers concurrently worked out the technical details. King discussed the requirements with the Atlantic Fleet Destroyer Force Engineer, Lieutenant Frederick M. Perkins. As the next waves of destroyers sailed for Europe, King and Perkins scurried to various naval stations along the eastern sea frontier. Working with various crews, Perkins supervised efforts to ready the refueling ships for wartime service with destroyers and transatlantic convoys. King returned to the flagship of the Atlantic Fleet to assist in planning operations. Coincident with these developments at the higher levels of command, *Maumee* received orders to sail for the Canadian port at St. John's in Newfoundland. By 17 May, *Maumee* joined *Kanawha* and ten other colliers hastily retrofitted to support oil replenishment operations in the Atlantic.

Following in the wake of Taussig, a second wave of U.S. Navy destroyers assembled off Newfoundland and sailed to European waters without immediate support from refueling warships. On 7 May, six additional destroyers sailed with Lieutenant Commander Charles E. Courtney assuming the role of first among other skippers of equal rank. Four days later, Commander Henry B. Price sailed directly to Queenstown at high speed in the destroyer

Royal Navy Admiral Sir Lewis Bayly, Commander, Western Approaches (U.S. Navy photo)

Admirals Sir Lewis Bayly and the First Sea Lord, Jellicoe, made special arrangements to absorb the Americans into an amalgamated combine command organization in European waters. Jellicoe and Bayly also installed Sims in a temporary assignment as Commander, Western Approaches in Queenstown (Cobh) Ireland in June of 1917. These arrangements greatly confused the chain of command within the Navy Department in Washington.

tender USS *Melville* (Destroyer Auxiliary No. 2) – arriving on 22 May for service as the flagship of Sims. Sixteen additional destroyers departed from American ports in two separate waves on 15 and 25 May. Commander Joel R.P. Pringle subsequently sailed in Dixie on 31 May, with seven additional destroyers sailing to Queenstown on 14 to 17 June.

From within the Admiralty, Jellicoe seized opportunities to establish Royal Navy command over U.S. Naval forces in European waters. Manipulating the situation from within the Admiralty, Jellicoe encouraged Bayly to take leave in order to allow Sims to assume temporary duty as the Commander of the Western Approaches on 18 June. During the following five days, Sims fell under the immediate command of the Admiralty. He claimed being the first American naval officer to hold direct operational command over Royal Navy warships in a combat area. When Sims returned to London, Pringle subsequently established Melville as flagship upon reporting to Sims in London as commodore of destroyers based in Queenstown. [112]

Marking a major milestone in the longer history of Anglo-American naval collaboration, Jellicoe and Bayly engineered efforts to amalgamate the Royal Navy with the U.S. Navy in European waters. Jellicoe helped Sims define the role of coordinating American naval operations in European waters. In communications with the Navy Department, Sims also adopted the radio handle of, "Sims, Admiral, Destroyers, United States," or "SIMSADUS."[113] Given the spirit of transatlantic collaboration, Sims and Pringle also appeared in the official rolls of the Royal Navy. Jellicoe and Sims coordinated operations from London, as Bayly installed Pringle to hold full Royal Navy status in the rank of captain with the title of Chief of Staff to the Commander, Western Approaches.[114]

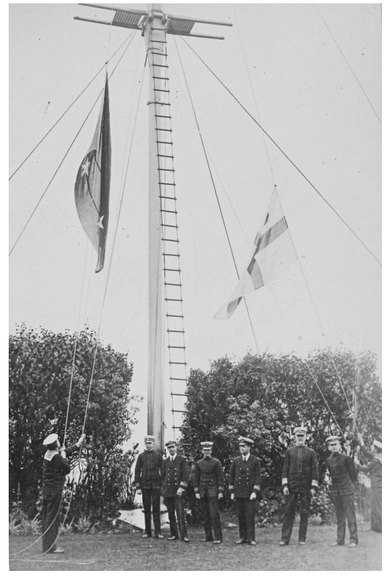
The functional and administrative relationships between Royal Navy and U.S. Navy commanders remained in a confused state. Having failed to coordinate such details in advance, Daniels arranged temporary promotions for Sims and Pringle. The four-star functions of the CNO, Benson, and those of the Commander, Atlantic Fleet, Mayo, placed Sims in

Commander Joseph K. Taussig leads the way with American destroyer skippers upon reporting for duty with the Royal Navy, under the Commander of Western Approaches, Admiral Sir Lewis Bayly, at Admiralty House in Queenstown (Cobh) in Ireland on 4 May 1917 . (U.S. Navy photo)

a strange position in relations with his superiors and in executing the mission in Europe. Although Mayo carried the responsibility for all the warships of the Atlantic Fleet, Benson also claimed control over Sims at the European front. Extemporaneously making decisions without sufficient contemplation, Daniels and Benson arranged for Pringle to receive an immediate appointment to the rank of captain, which coincided with Sims receiving the positional promotion in the rank of three-stars. Sims also assumed the duties of Naval Attaché in London.

Feeding Greyhounds

Efforts to coordinate transatlantic operations in Europe remained in the early phases of development as the Atlantic Fleet staff under Mayo prepared to send additional U.S. Naval forces to the front. The Chief of Staff, Captain Orton P. Jackson placed the weight of responsibility for planning the logistical requirements with the Fleet Engineer, King. With assistance provided by Commander Leigh Noyes and Lieutenant Commander William S. Pye on the Atlantic Fleet staff, King coordinated



Sims breaking his three-star flag upon assuming temporary duty within the Royal Navy as the Commander, Western Approaches in June of 1917. (U.S. Navy photo)

Commander Ernest J. King stands the deck with Admiral Henry T. Mayo, coordinating Atlantic Fleet operations at sea. Courtesy, Ernest J. King family. (U.S. Navy photo)

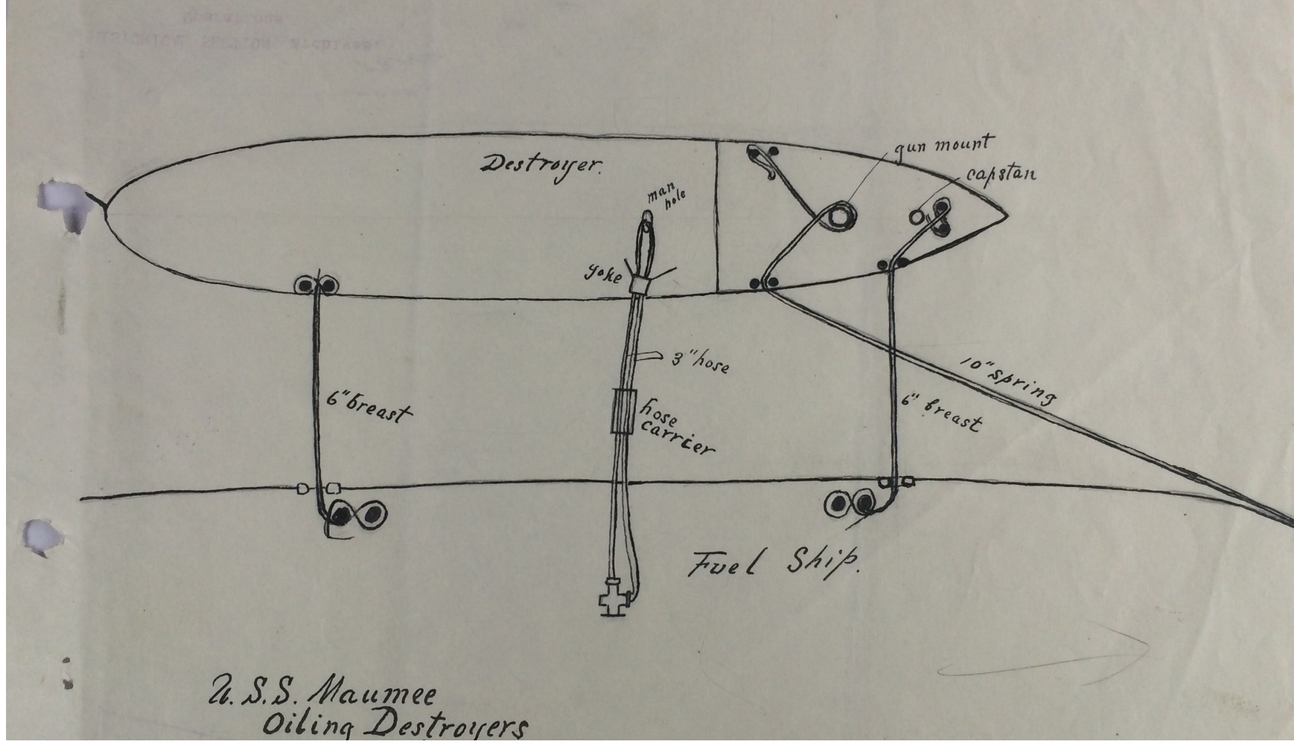
plans to maneuver refueling ships into position to support the destroyers during the voyage to European waters. Mayo empowered King to act with full authority in arranging the logistics with rear admirals Gleaves, in the Atlantic Fleet Destroyer Flotilla, and Rodgers, in the Fleet Train. King later applauded the example set by Mayo – empowering his younger subordinates on the Atlantic Fleet.[115]

Lacking mature procedures for executing fleet refueling operations involving transfers of oil between ships, King coordinated with the skippers of the refueling ships *Maumee* and *Jupiter* to determine the optimal rendezvous locations for destroyers to conduct refueling operations in the North Atlantic. Dinger received the mission of providing oil for the destroyers assigned to Queenstown. On 24 May, he sailed in *Maumee* from St. Johns approximately forty-eight hours ahead of the destroyers – maneuvering to a position roughly three hundred nautical miles south of Greenland in 45 North latitude and 37 West longitude. Simultaneously, Lieutenant Commander Clarence A. Kempff sailed in Jupiter with sealed orders to support the delivery of the U.S. Naval aviation detachment to France. Departing from New York on 23 May, Kempff took Jupiter to a position at 47 North latitude and 13 West longitude – approximately five hundred from the approaches to Bordeaux. Taken under escort, Jupiter fell in with lieutenants (junior grade) George W. Simpson and Charles F. Russell respectively in USS *Sterett* (Destroyer No. 27) and USS *Walke* (Destroyer No. 34).

The planning and coordination involved with sending the Atlantic Fleet destroyers from American to European waters proved decisive. Although technical mishaps occurred during the operations, the crews of *Maumee* and *Jupiter* successfully executed the first underway transfers of oil to ships running along side in combat during May and June of 1917. The underway replenishment operations of *Maumee* overshadow those of other U.S. Naval warships. On 28 May, *Maumee* successfully refueled six destroyers without stopping and under difficult wartime conditions. Dinger explained procedures employed in *Maumee* that in:

> smooth weather one destroyer can be taken on each side, and in calm, destroyers can make fast and receive oil as in port. The first time that this was tried was in a moderate sea, as the attached photograph will indicate. The destroyers were each oiled in about two hours, and oil was delivered at from 30,000 to 40,000 gallons an hour. In some cases destroyers were connected up and oil being pumped on board in 15 minutes from the time the destroyer passed the stern of fuel vessel, this being done with a vessel that had never previously gone through the operation. With practice, a destroyer could no doubt connect up in 10 minutes.[116]

Dinger compared notes with Nimitz to compile a highly detailed report, filed while at sea on 2 June. After returning to port at St. Johns, Dinger included additional details with a photograph and a sketch of the procedure, as executed by Nimitz. Applying lessons from previous failed attempts, Dinger praised Nimitz for supervising the underway replenishment and for masterminding the design and development of a wooden yoke for use in stabilizing rubber hoses as ships ran alongside during replenishment operations. The wooden shape resembled a half-moon, rigged

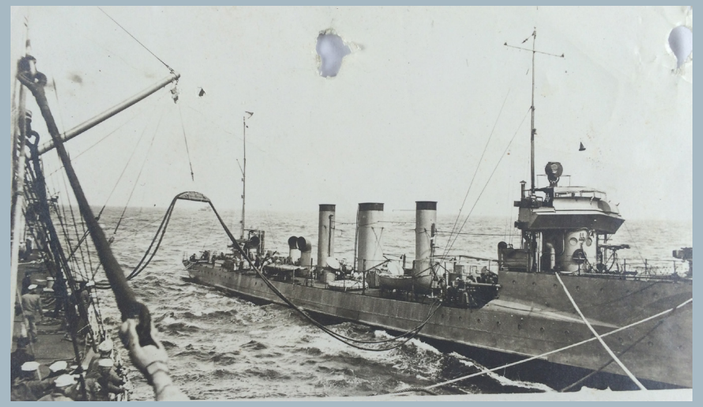


Original hand-rendered sketch of alongside oil refueling procedure, as executed by Maumee in the summer of 1917. (National Archives)

from a boom to hold a hose of three-inches circumference. Lieutenant Glenn B. Davis and Chief Boatswain Michael Higgins designed the device, for which Nimitz later endorsed letters of commendation. Dinger specifically mentioned their names in dispatches submitted to Gleaves in the Destroyer Flotilla and Rodgers in the Fleet Train.[117]

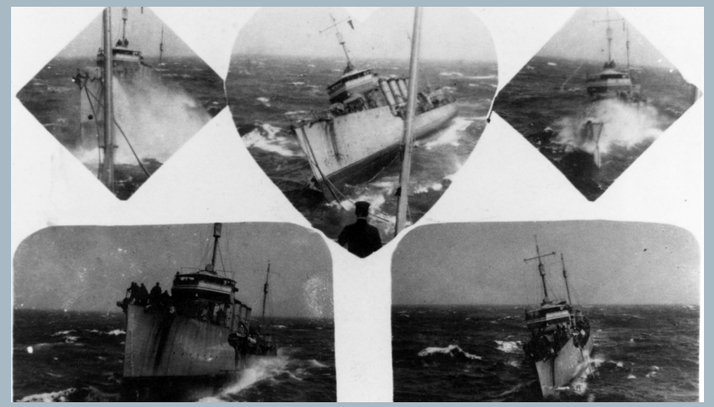
The *Maumee* refueling operations defined U.S. Navy underway replenishment procedures for oil-burning warships. On 9 June, Gleaves disseminated the *Maumee* report to all U.S. Navy destroyers with an explanatory note, which did not appear in the original report from Dinger. "As this is apparently the first attempt at actually performing this operation in anything but smooth sea all details are given," Gleaves noted that destroyers can be "quickly oiled in a moderate sea, both vessels rolling and pitching considerably, a roll of 10 degrees on fuel ship or 20 on destroyers does not interfere materially."[118] Rodgers corroborated the portrayal that *Maumee* succeeded for "the first time [oil replenishment] had ever been attempted."[119] Having the distinction of completing an underway replenishment with *Arethusa* in a bow to stern approach four years earlier, the *Warrington* crew under Lieutenant Issac F. Dortch muddled the procedure when the forward bow lines fouled and "breast carried away, pulled hose out of tank [which] required one half hour to connect up again."[120]

Riding the waves with the accolades of Gleaves and Rodgers, the *Maumee* crew received formal commendations for their ingenuity. The wooden yoke mechanism to stabilize the refueling hoses during replenishment maneuvers set them apart from others in the spring of 1917. Their procedure enabled refueling ships to avoid fouling hoses as multiple warships sailed simultaneously alongside without stopping. For this reason, Dinger published an account found in the Naval Institute *Proceedings*, portraying the operation as the "first actual oiling of vessels at sea in rough weather."[121] Nimitz authoritatively confirmed the Dinger account in an article published forty-two years later by *Petroleum Today* under the title, "The Little-Known Tale of the USS *Maumee* and Her Role in the Development of the Navy's Secret Weapon."[122]



Oil refueling from Maumee in the North Atlantic in 1917 – note the wooden yoke holding the hose from crimping. (U.S. Navy photo)

Refueling in the Atlantic in 1917. (U.S. Navy photo)



USS McCall approaches Maumee during refueling operations in the Atlantic in 1917. (U.S. Navy photo)

Commander Chester W. Nimitz covering the missing ring finger after he lost it while demonstrating diesel technology during the First World War. (U.S. Navy photo)

Nimitz artfully omitted making reference to the oil refueling operations, which preceded those of *Maumee*. Although his memory may have faded when telling his sea stories more than four decades after the fact, Nimitz failed to acknowledge the earlier refueling operations of *Jupiter*, the role of King and the Atlantic Fleet staff, and the Fleet Train. Nimitz apparently forgot about the experimental underway oil transfers between *Jason* and the straddling *Fanning* and *O'Brian* in the approaches to the Narragansett Bay in 1916. Nimitz also failed to recall the successes of his former boss, King, such as the stationary stern to bow transfers of oil between *Arethusa* and *Terry* during combat operations off Veracruz in 1914.

The sea stories surrounding the exploits of *Maumee* remain important in the longer chronology of U.S. Naval operations. However, the operations of *Maumee* in the spring and summer of 1917 also reflect problems of heroic myth and popular memory as found within the historiography of the U.S. Navy. Wireless transmissions from *Maumee* heralding their successes of 28 May annoyed the skipper in *Jupiter*, Kempff. Given the suspected presence of enemy forces in the combat zone, he maintained strict radio silence to avoid giving the location of Jupiter with unnecessary wireless emissions.[123] "On May 25," Kempff reported "oiled both Destroyers to test oiling gear, the *Jupiter* or the *Walke* and *Sterett* never having attempted to transfer oil at sea before."[124] Given the claims transmitted from Maumee on 29 May, the earlier success of *Jupiter* four days before stood lost in the message traffic. Upon arriving in Bordeaux on 8 July 1917, Kempff refuted the claims of *Maumee* and detailed the operations of *Jupiter*.

In fact, *Jupiter* beat *Maumee* to the punch in executing the first combat refueling operations in the recorded history of the U.S. Navy. Kempff lambasted the showboating of the *Maumee*, further chastising his counterparts for sending a wireless transmission in waters patrolled by enemy submarines. "This was an embarrassment for the following reasons," Kempff stated,"the effect of neutral (?) vessels intercepting our Radio." He failed to respond to the query from *Maumee*, justifying the decision, explaining that the Admiralty in London transmitted a "war warning informed us later of a submarine within forty miles of the rendezvous."[125] The night before pulling into the Gironde River in the Bordeaux approaches, Kempff reported a harrowing account of an "encounter with submarine … sighted the wake of a torpedo approaching on our starboard side and nearing the bow of the *Jupiter*." He put the rudder full to starboard and revved the portside engines to swing the "bow towards the torpedo which passed thirty feet from the stern … a second torpedo passed under the stern [as] *Jupiter* crossed the wake of the forward torpedo and clear of both."[126]

The outstanding seamanship of the *Jupiter* crew was shadowed by the *Maumee* refueling. The *Jupiter* also completed successful tactical replenishment on 25 May, or three full days preceding the *Maumee* refueling on 28 May. Yet, U.S. Naval procedures for underway replenishment evolved from standards pioneered by the *Maumee* crew. Dinger and

Nimitz detached from *Maumee* shortly after their original triumphs of 28 May 1917. Lieutenant Commander Mark C. Bowman assumed command with Davis "fleeting up" to relieve Nimitz as executive officer. Dinger subsequently served in the Bureau of Steam Engineering to perfect the underway replenishment procedures of Maumee. Nimitz reported for duty as the Aide to Rear Admiral Samuel Robison, Commander of Submarines, Atlantic Fleet.[127] In this role, Nimitz frequently collaborated with King – who earned the reputation for being an "unusually able officer" for his exploits through the First World War and beyond.[128]

Oil Kings

Pulling together with Sims and Mayo in coordinating combined naval strategy with foreign forces, King and Nimitz concurrently gained a unique perspective on the decisive role of logistics in conducting sustained operations far from bases ashore. Their experiences during the First World War shaped their perspectives as the U.S. Navy refined procedures for supporting operations with refueling and underway replenishment tactics in peacetime. Given limited supplies of petroleum in Europe, King also witnessed the mayhem of Anglo-American combined command after the arrival of Rear Admiral Hugh Rodman and the coal-fired battleships of the Ninth Battleship Division of the Atlantic Fleet in the fall of 1917.[129] The British immediately absorbed the American battleships into the Grand Fleet as the "Sixth Battle Squadron." As a result, Rodman failed to acknowledge the implied command authority of Sims in London. Rodman played his immediate superior within the Grand Fleet, Royal Navy Admiral Sir David Beatty, against his other immediate superiors within the U.S. Navy, Mayo and Benson. As Jellicoe also empowered Sims to use the Admiralty for leverage, Mayo and Benson also struggled to define the actual chain of American naval command in European waters. British supremacy in organization ultimately left the Americans with few options other than to muddle along and follow.[130]

Coal remained abundant in the Scottish north, although oil reserves remained a preciously regulated commodity in the home islands of the British Empire. Only coal-fired battleships had the capacity to operate efficiently from European ports. For this reason, Mayo initially withheld the oil-fired battleships of the Atlantic Fleet for operations in American waters. Occasionally, he sailed with his staff on board the flagship, Pennsylvania, for meetings with Sims and other American commanders at the front in Europe. The arrival of Mayo in the oil-fired American battleship Pennsylvania symbolized the burgeoning supremacy of the U.S. Navy. Although the Admiralty largely controlled communications in European waters during the First World War, Mayo also adopted a special communications cipher in order to control the flow of information within American naval commands.[131]

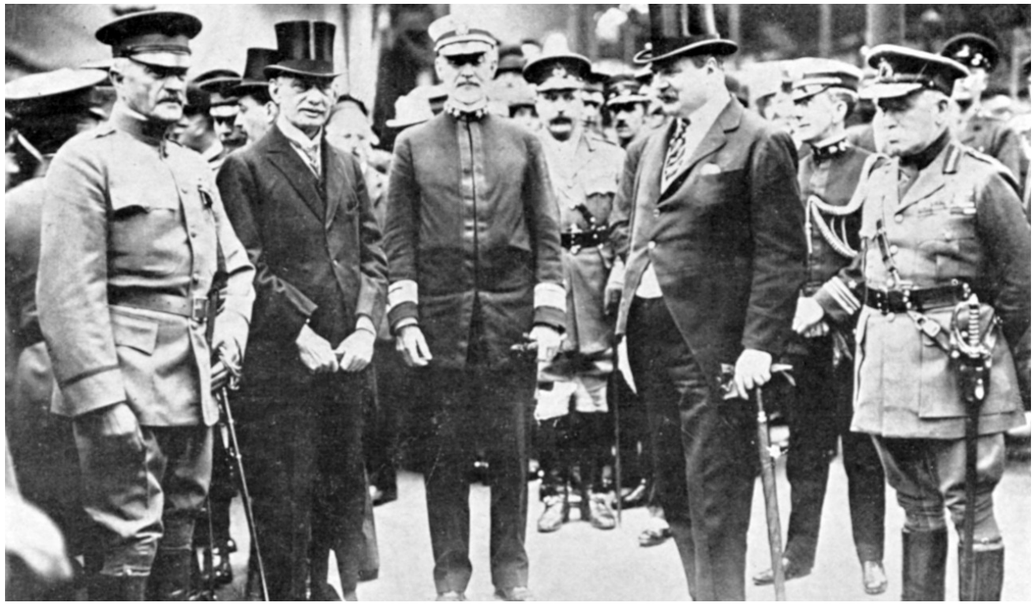
Intelligence superiority enabled the Admiralty to influence the operations of the U.S. Navy, as Jellicoe entrusted Sims with handling information through the good offices of his London headquarters. Room 40 also monitored the communications among the Americans and other allied forces. Under the circumstances, Commander Russell Willson, the Atlantic Fleet Communications officer, invented a device designed to double-encrypt communications among U.S. Naval forces. Acting on the authority of Mayo, the acting Chief of Staff, temporary Captain Ernest J. King, issued the directive to establish the Naval Cipher Box (NCB) of Willson as the standard means for internal communications among U.S. Naval forces deployed to European waters. Roughly two decades later in the following world war, King and Willson later drew from their First World War experience to reframe relationships among British and American naval communications and intelligence.[132]

Problems experienced by American naval commanders at the front also fueled divisions between the American Expeditionary Forces (AEF) of U.S. Army General John J. Pershing and the Headquarters of the Commander, U.S. Naval Forces in European Waters, under Sims. The disjointed strategy within the American organization in Europe sparked problems between the ranking U.S. Navy commanders at the front. Meanwhile, Royal Navy commanders also struggled to navigate the maddening organization of the U.S. Navy. On paper, Sims appeared to hold full strategic command in European waters, which also implied the authority to plan operations and coordinate the movements of tactical forces. Yet, Sims

USS McCall approaches Maumee during refueling operations in the Atlantic in 1917. (U.S. Navy photo)

USS Melville in Queenstown, flagship of U.S. Naval Forces in European Waters. (U.S. Navy photo)

Wartime rendering of the U.S. Navy destroyers arriving in the Western Approaches in the spring of 1917, as depicted by Bernard Gribble the following year. (From the collections of the U.S. Naval Academy)



Questions of combined and joint command loom over London, upon the first meeting of American military and naval commanders at the European front. (U.S. Navy photo)

From left to right standing are Major General John Pershing, American Ambassador Walter H. Page, Rear Admiral William S. Sims, Edward Stanley – 17th Earle of Derby, and Field Marshal Sir John French on 6 June 1917.

experienced significant difficulty in coordinating with other U.S. Navy admirals, particularly Henry B. Wilson in France, Joseph Strauss in the North Sea, and Albert P. Niblack in Gibralter.[134] Having lost control to Sims in commanding Atlantic Fleet Destroyers in European waters, Rear Admiral Albert Gleaves also carved out his own autonomous authority as Commander, Atlantic Convoy Operations. In memoirs, he offered a single passing reference to Sims.[135] Avoiding any mention of the Planning Section of the "London Flagship" headquarters, Gleaves claimed preeminent the role in organizing the transatlantic convoy system.

Experiences in European waters informed American perspectives in examining strategic questions of multinational command and combined operations. Sims dutifully made best with a bad situation in coordinating transatlantic strategy between the Admiralty and Navy Department, concurrently working with Mayo to pioneer new means to synthesize U.S. Naval operations at sea with intelligence supplied from headquarters ashore. Sims and Mayo also worked together to safeguard U.S. Naval interests during the rancorous deliberations of the Allied Naval Council after the Armistice of 11 November 1918. However, the lopsided command relationships persisted into the negotiations surrounding the Treaty of Versailles into the spring and summer of 1919. With the grand scuttle of the German High Seas Fleet at Scapa Flow, historical rivalries among European and American navies reemerged as the navies of the world raced to secure the advantages of oil an era of reconstruction, revolution, and economic chaos.[136] As the Europeans sought control over the oil reserves of the Middle East, the Iraqi Revolt against foreign occupation forces bled over the lines drawn with crayons on the map by generals Mark Sykes and François Georges-Picot during the First World War.

Geographical distance from Europe and Asia provided natural advantages, as the vast expanses of the sea enabled the U.S. Navy to seize opportunities to consolidate maritime command in the Americas. Vast natural gas and oil reserves ashore progressively enabled the U.S. Navy to emerge second to none in the global maritime arena. Seasoning in the First World War also influenced efforts to derive lessons from the experience at the Naval War College. Having

"Billy" – William S. Sims, Jr. wears the cap tally of his father's flagship, USS Melville, in the First World War. (U.S. Navy photo)

attained four-star rank in December of 1918, Sims requested a second tenure in two-star rank as President of the Naval War College in April of 1919. In this role, he combined forces with Mayo on the General Board of the Navy. Sims and Mayo organized a board with the mission of examining the problem of professional education before the First World War, but with the specified task of providing recommendations for improvement. The board convened under the overall supervision of Captain Dudley W. Knox – the wartime head of the Planning Section in London. Former members of the Atlantic Fleet staff joined Knox in Newport to assist the analysis, including Captain Ernest J. King with Commander William S. Pye.[137]

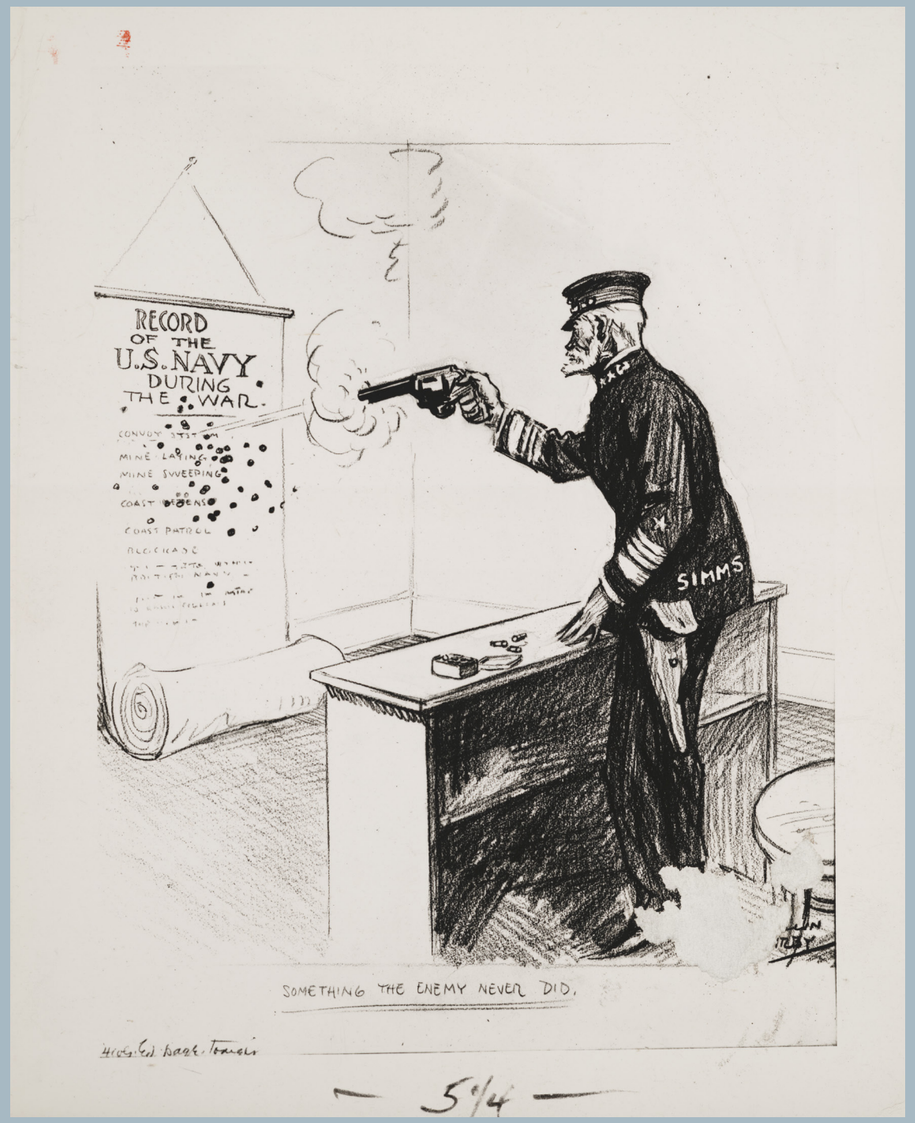
Foreign allies assisted the U.S. Navy in efforts to defeat common enemies. Yet, the experience highlighted serious strategic vulnerabilities for the Americans. The problem of professional naval education became a significant topic of interest after the U.S. Navy returned from the front. The First World War ultimately inspired American naval practitioners to study history more closely in order to master the future strategic challenges of coalition warfare. To these ends,

Rear Admiral William S. Sims during his second tenure as President of the Naval War College stands with Assistant Secretary of the Navy Franklin D. Roosevelt after the First World War. (U.S. Navy photo)

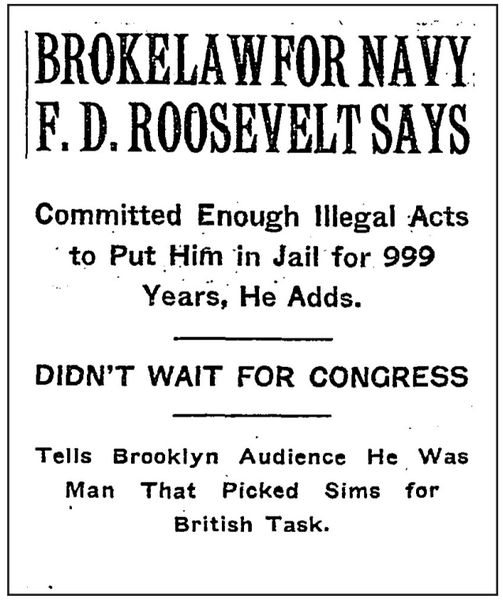
The Commander, Atlantic Fleet, Admiral Henry T. Mayo, stands at center with his staff during a tour of the European Front during the First World War. (U.S. Navy photo)

Sims and Mayo worked together in forming a board to study the problem of professional naval education. Captains Knox and King collaborated with Pye to identify the key problems in framing recommendations for fixing the basic strategic problem of professional naval education within the ranks of the U.S. Navy. In particular, King leveled the cutting observation that admirals within the U.S. Navy only possessed formal education equivalent to recent graduates of the Naval Academy, or otherwise only equivalent to the "lowest commissioned grade." As American taxpayers lacked fundamental understanding about the role of navies in both peace and war, the Knox-Pye-King (KPK) Board emphasized the mission of the Naval War College in supporting the U.S. Navy mission of educating practitioners within the ranks as well as the public. King also derided the majority of admirals – with the exceptions of Sims and Mayo – "as mostly old fogies brought up in the days of promotion by seniority only."[139]

Wantonly ignorant members of the old Navy reluctantly faded from the ranks, as younger professionals embraced the Naval War College. As a historical forum, the institution provided opportunity for practitioners to develop applicable perspectives on questions of contemporary strategy for the purposes of framing the future of the U.S. Navy. Technological variables – as experienced in making the shift from coal to oil – failed to change the basic educational function of the Naval War College. Focusing upon the fundamentals of history to help facilitate the ongoing technological advancements that fueled the rise of an American navy "second to none" after the First World War, Sims also drew from the model provided by Sir Julian Corbett in establishing a "Historical Section" under Knox at the Naval War College. The former intelligence officer in the wartime London headquarters of Sims, reserve Lieutenant Tracy Barrett Kittredge, coordinated the studies conducted by the Knox-Pye-King Board and the applied research



Cartoon depicting Admiral William S. Sims using a Colt 45 "Peacemaker" to shoot holes in the claims of success by Navy Secretary Josephus Daniels in order to emphasize the importance of professional education and and learning from the strategic mistakes made during the First World War.



BROKE LAW FOR NAVY F. D. ROOSEVELT SAYS

Committed Enough Illegal Acts to Put Him in Jail for 999 Years, He Adds.

DIDN'T WAIT FOR CONGRESS

Tells Brooklyn Audience He Was Man That Picked Sims for British Task.

New York Times headline of FDR "999 years in prison"

functions of the Historical Section of the Naval War College after 1919.

Sharing ideas and refining the concepts within the unpressured confines of the classroom and gaming floors of the Naval War College, U.S. Naval practitioners focused their analytical efforts upon securing the high seas with oil-fired fleets with the capacity to conduct sustained operations without requiring regular access to bases ashore.[140] Refining the oil advantage, U.S. Navy practitioners used the foundations of history to develop new strategic concepts for employing American sea power, coordinating operations without access to bases ashore, and for integrating oil-fired forces in multiple subsurface, surface, and aerial functions. The fundamental mission of the U.S. Navy remained unchanged in both peace and war, although the Naval War College provided the forum for practitioners to explore their ideas in the comforts of a classroom wherein open debates unfolded, ideas could be explored on a gaming floor, and ultimately refined in the form of written studies. Leading the way in this brave new world, King completed the Naval War College curriculum three times, Nimitz in 1923, and Halsey completed studies in Newport before attending the Army War College in 1934.

The technological shifts associated with the transition of the U.S. Navy from coal to oil coincidentally amplified the functions and purpose of the Naval War College. The death of Mahan in 1914 followed three years later by the death of the Naval War College founder, Rear Admiral Stephen B. Luce, marked another shift in the oil-fired discussion about the future of American sea power. Following in their wake, Sims rekindled the vision and historical mission of the Naval War College. His role in educating the U.S. Navy coincided with the shift from coal to oil. In 1914, none of the twenty-six admirals on active service in the U.S. Navy had completed the Naval War College curriculum By 1924, twenty-six of forty-nine admirals earned credentials in Newport. As U.S. Naval forces faced the rigors of waging an undeclared war at sea in 1941, eighty-one of eighty-three admirals stood fully educated by the Naval War College to win decisively in the Second World War.

Considering the triumphant narrative of global operations in the world wars at sea, the technological shift from coal to petroleum appears within the subtext of the historiography. Many official and semi-official histories *incorrectly* portray the *Maumee* operations as the first underway transfer of oil between warships in wartime. Taking a closer look at the original documentary records, the development of oil refueling and tactical replenishment at sea clearly preceded that of *Maumee* on 28 May 1917. Engaging more closely the oily truths found in historical archives, the original records also provide fresh perspectives upon the pivotal refueling operations of *Maumee* – and *Jupiter* – during the early phases of U.S. Naval operations in the First World War. Other refueling operations involving oil remain important milestones in the development of oil refueling and tactical replenishment doctrine for the U.S. Navy. Through the early experimentation of junior officers, like King and Nimitz, the U.S. Navy had the rudimentary procedures for transferring oil between ships running side by side well before the operations of *Maumee* in May and June of 1917.[141]

Given the precedence established by *Maumee* and *Jupiter* in executing underway replenishment operations involving oil-fired destroyers, the U.S.

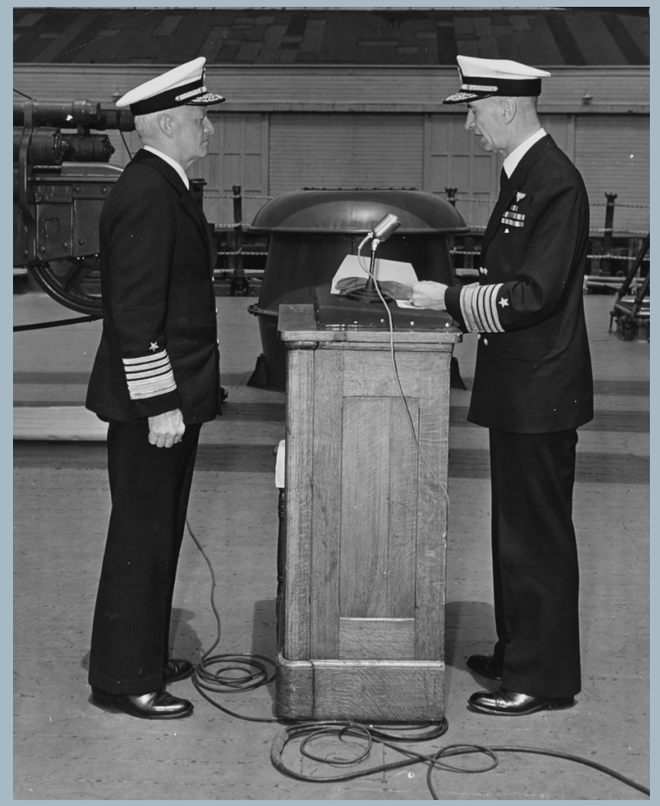
Navy gained strategic experience and pioneered new concepts in joint and combined operations. As the U.S. Navy sailed from the nineteenth century reliance on coal, Sims and his associates focused upon a future in oil. Ultimately, the U.S. Navy gained unprecedented strategic advantages by enabling younger officers – like King and Nimitz – to take risks and develop procedures for supporting oil-fired fleets. Having commanded destroyers at Queenstown in the First World War, Halsey also helped refine procedures for refueling oil-fired fleets during the 1920s and 1930s.

Popular portrayals of such singular feats as those of the *Maumee* have overshadowed other key perspectives, which remain obscure in the historiography of American sea power. Among the unsung personalities most heavily involved with developing oil-refueling procedures and in underway replenishment doctrine during the world wars, Captain George Dinger received a special letter of commendation from the Secretary of the Navy for his service in the First World War. With the service operating at half-pay after the economic collapse, he received transfer orders to the retired list of the U.S. Navy in 1930. Dinger continued advising in the Bureau of Engineering and Construction and Repair, simultaneously working at the Philadelphia Naval Shipyard.

Dinger remained an important figure in the development of global logistics within the ranks of the U.S. Navy. He served as chairman of the American Society of Naval Engineers in the 1930s. He also served as an adviser to the General Board of the Navy, assisting in the development of fleet refueling procedures and other special projects of technical concern. Having served on the staffs of Sims and Mayo during the First World War, he later returned in uniformed retired status to serve on the staffs of his former subordinates, Fleet Admirals Ernest J. King and Chester W. Nimitz, during the Second World War. Although Dinger stands with many other widely forgotten historical figures in the historiography, his influence upon the U.S. Navy remains worthy for future consideration.[142]

Through two world wars, the U.S. Navy gained a strategic advantage in peacetime by providing opportunities for younger officers to take risks while assuming the inherent responsibilities of command. The oil refueling tactics as developed during the era of the First World War progressively enabled the U.S. Navy to begin the process of abandoning the acquisition and maintenance of distant land bases, such as the Philippines, in accordance with the efforts of President Franklin D. Roosevelt to reduce tensions in Asia. Given the lessons derived from studies of past wars, navies quickly shifted to oil in order to gain the strategic advantage within the global maritime arena during the 1920s and 1930s. Indeed, the Imperial Japanese Navy arguably stood equal to the U.S. Navy in developing the capacity for sustained offensive operations at very long ranges in anticipation of the Second World War.[143] In the century since the rapid transition from coal to oil, contemporary U.S. Naval practitioners may indeed discover fresh insights from this rich history for application in the development of future strategy and operational doctrine.

The hierarchical chain of command and the established rules of doctrine often provide means for informed adaptation, although the historical transitions from sail to steam and from coal to oil also highlight the overarching reason why contemporary practitioners must be willing to take risks in order to gain the future strategic advantage in both peace and war. Given the constantly shifting variables of technology, contemporary naval practitioners may regularly revisit the past to rediscover means to develop fresh solutions to problems of contemporary focus. In examining the transition from sail to steam and from coal to oil, the U.S. Navy attained the decisive strategic advantage by nurturing innovation within the ranks. Older naval officers, like Sims and Mayo, helped younger practitioners, like Dinger, Nimitz, and King. Having refined the oil advantage during the world wars, the U.S. Navy somewhat returned to the age of sail with the development of nuclear propulsion in the Cold War era. The sustenance of the crew on board remained a limitation, although nuclear technology provided an infinite source of power. Akin to efforts of the past, problems associated with nuclear power arguably present similar challenges to those of wind, coal, and oil. Historical trends in technology illustrate the point that human beings must always consider the past in finding fresh means to navigate the uncharted waters of the unwritten future – into the twenty-first century and beyond.



Admiral Chester W. Nimitz stands at attention in the presence of his boss, Admiral Ernest J. King, to receive a medal after the Battle of Midway in the Second World War. (U.S. Navy photo)

Having drawn lessons from their shared experiences at refueling and other critical operations at sea and ashore in the First World War during studies at the Naval War College, admirals King and Nimitz continued working together to win decisive victory in the Second World War.

Using techniques developed in the era of the First World War, the U.S. Navy of the Second World War conducted sustained naval operations at sea without access to bases. This capability proved decisive and remains so into the twenty-first century. (U.S. Navy photo)

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Refueling pioneers of the First World War applying strategic lessons of the past into the Second World War, as King checks in on Nimitz at Saipan in 1944. (U.S. Navy photo)

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