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ON THE COVER: A Koerner and Hayes lithograph of USS Vesuvius. *(Library of Congress via Naval History and Heritage Command)*

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The HRNM reports to the Naval History and Heritage Command, Museums Division (www.history.navy.mil), and is dedicated to the study of naval history in the Hampton Roads region. It is accredited by the American Association of Museums.

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Questions or comments to Hampton Roads Naval Museum editor Clayton Farrington: (757) 445-8574. Fax: (757) 445-1867. E-mail: hrnavalmuseum@navy.mil. Or write: *The Daybook*, Hampton Roads Naval Museum, One Waterside Drive, Suite 248, Norfolk, VA 23510-1607. The museum is on the World Wide Web at http://www.history.navy.mil/museums/hrnm/index.html.

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A Gateway to the World

The Director's Column

by Becky Poulliot

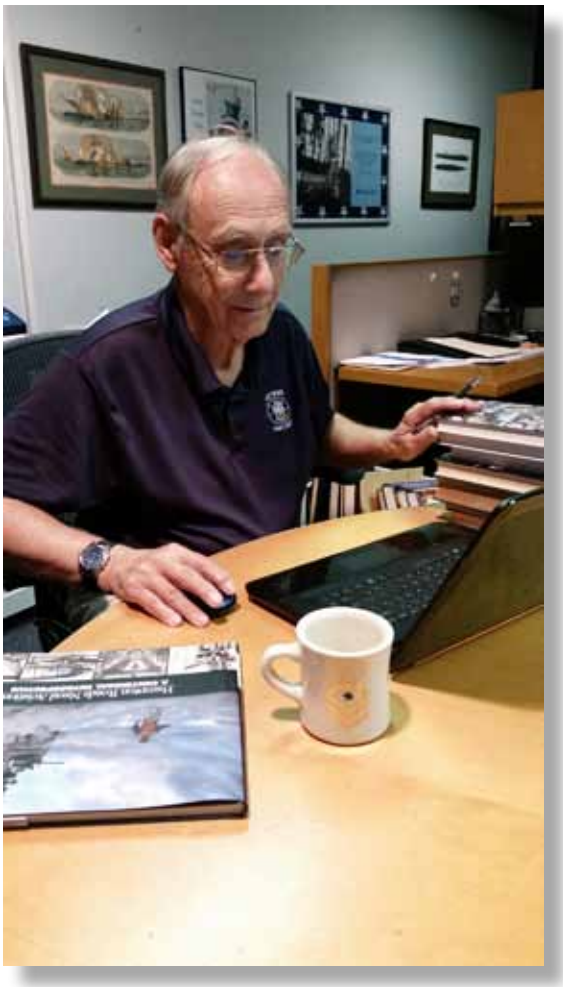
I hope you are as excited as I am with the latest issues of *The Daybook*. Our new editor, Clay Farrington, is approaching his work with enthusiasm and a profound curiosity. Emphasis remains on our mission: the study of the Navy in Hampton Roads. That realm includes many themes and stories, and this issue brings the topic of innovation to the forefront. With the idea of innovation in mind, I will introduce you to a recent staff addition—Volunteer David Titus.

It's fortunate for us that David and his wife, Alice, relocated this year from the chilly climes of Albany, New York. David, a retired chief petty officer in the Naval Reserve, spent a career in teaching and librarianship. He brings to us vital knowledge of what automation can do for a research institution. Furthermore, he knows what questions we need to ask to purchase a suitable automated system.

Many of you know that HRNM operates a specialized non-lending research library, particularly strong in two areas-museum studies and Hampton Roads naval-related works. Most of our books and research holdings consist of secondary source material, but there are pieces of ephemera like scrapbooks, newspapers and clippings, log books and blueprints that are found nowhere else. Enter David with a roadmap to open HRNM's library to the world. He is currently working with HRNM librarian Michele Levesque to put together what we in the Navy call a POA&M—a Plan of Action and Milestones.

The first step is a consistent written policy concerning library acquisitions and gifts. HRNM already has an artifact collections plan and the library will follow suit. David and Michele will apply this plan to our current collection, making the library a bit leaner but more refined to our mission.

Concurrently, David is doing the groundwork to prepare us for automation, our **second step**. He is literally going through each book, checking for electronic catalog records. He then catalogs the work retrospectively in this automated format. All records will be in standard machine-readable format (MARC), an essential element for automation. David is about one-third through this process of retrospective conversion. He has assured all of us that his ongoing automation work—although it will spell the end to the beloved card catalog station (yes, we still have one)—will result in sharing the catalog of our library resources globally.



Volunteer librarian David Titus sorts through books at the Hampton Roads Naval Museum. (HRNM Photo by Michele Levesque)

> ***"[T]he visitor wants to have a tailored experience--to be able to select and relate artifacts from sources world-wide ."***

The **third step** will be to research and find the right automated online system, one that will eventually integrate all HRNM's research holdings. As public stewards, we want researchers to know what we have, and to then make it accessible. Along that line was our successful effort to obtain an International Standard Serial Number from the Library of Congress for *The Daybook*. This number puts HRNM on a global footing, enabling our material to be posted on research networks like EBSCO, JSTOR, and even WORLDCAT. Recently, the Smithsonian library requested a hard copy of every *Daybook* issue!

The natural progression is to be able to share our collection of photographs and artifacts in the same unified manner. This topic is one that our entire Naval History and Heritage Command will undertake: to share a unified collection of material and our cultural assets. Trends in the field now demonstrate that the visitor wants to have a tailored experience--to be able to select and relate artifacts from sources world-wide.

Today in our gallery, HRNM opens its priceless artifact collection to hundreds of thousands of visitors each year. With David Titus onboard, we'll be able to do the same with our two-dimensional offerings. It's an exciting time to be in our field.

Becky

In this print made by the American Publishing Company of Hartford, Connecticut, USS Vesuvius *(foreground) and the fourth rate gunboat USS* Petrel (PG-2) *are depicted together around 1891, when both vessels were attached to the North Atlantic Squadron in Hampton Roads. During the Spanish-American War several years later,* Petrel *would take part in the Battle of Manila Bay as part of the Asiatic Squadron, while* Vesuvius *conducted her rather unusual nighttime bombardments of Spanish positions in Cuba. (HRNM Collection) INSET: Polish immigrant, Army officer and weapons designer Edmund Zalinski (Wikimedia Commons)*

The "Giant's Cough" of Edmund Zalinski

USS *Vesuvius*: A Unique Dead-End on the Naval Evolutionary Line

By Elijah Palmer, HRNM Educator

On April 28, 1888, a sleek-looking craft slid down the rollers into the Delaware River, marking the official launch of the Navy's newest weapon, USS *Vesuvius*. Built by the William Cramp and Sons Shipyard in Philadelphia, *Vesuvius'* construction was a victory for an Army artillery officer named Edmund Zalinski as his own branch of service had been less than enthusiastic for his invention, the pneumatic dynamite gun.

The basic idea of this weapon was to shoot an explosive charge using compressed air. The term "dynamite gun" was a bit misleading, as the explosive found in the shell was a "desensitized blasting gelatin," not pure TNT. But the name stuck because it captured the imagination. Dynamite was a relatively new invention, patented in 1867 by Alfred Nobel. This new creation held great military potential, but there were several obstacles to overcome in order to make it useful for artillery. As it was considered unsafe to use gunpowder to shoot dynamite and similar substances, an alternative method was needed to fully capture the potential of these explosives for use by artillery. The solution was found in using compressed air to propel the charge out a smoothbore barrel. As regular artillery was focused on rifled guns at this time, the retrograde shift to a smoothbore was unusual, but seemed necessary for the explosive round.

While Zalinski's name is often credited with inventing the dynamite gun, he was not the original inventor. That honor belongs to D.M. Medford, a schoolteacher from Ohio who exhibited his weapon to the Army in 1883. Zalinski was present at these demonstrations and was impressed enough to work on several improved versions of the gun. At this point in the story, Medford seems to have disappeared, even though he had taken out a patent on his prototype. Instead, the artillery officer Zalinski took the prominent role in advancing the dynamite gun as a military weapon, starting with his first prototype in 1885. This gun was able to fire a shell of 100

Although the ends of the three smooth-bore guns only protruded about 7 feet above the forecastle at a fixed 18-degree angle, they belied the colossal 55-foot length of the barrels, which went two decks down. (Detroit Photographic Co. Collection, Library of Congress)

pounds of explosive at a target two miles away.

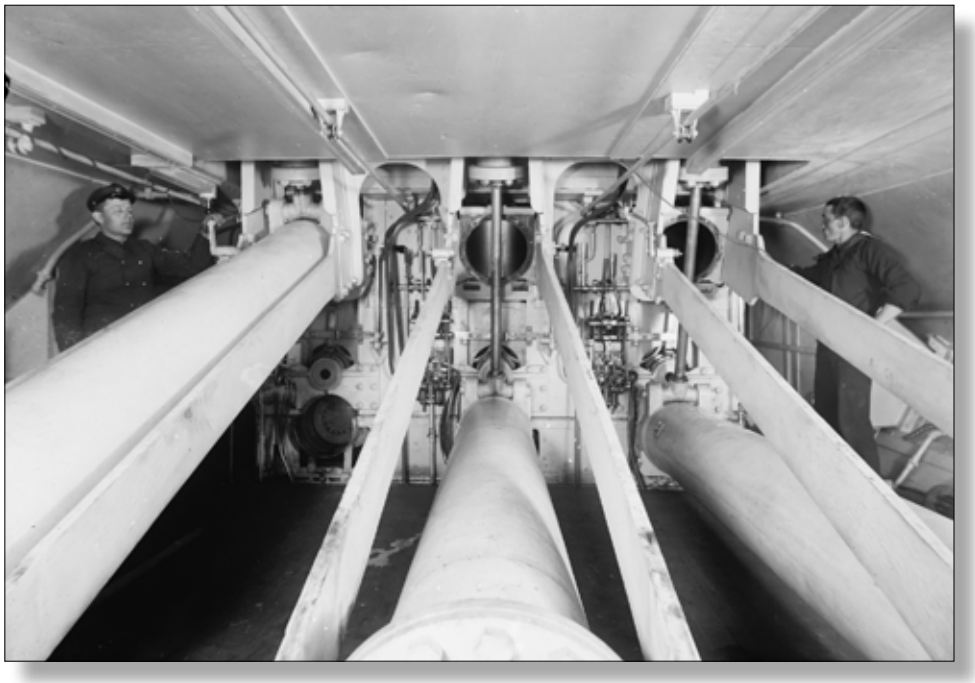
The greatest potential for this weapon was believed to lie in use against enemy ships. As the ironclads of the Civil War and the new Steel Navy showed, naval armor technology was increasing rapidly, making it more difficult to sink enemy ships. The allure of the damage a single dynamite round could produce was nearly irresistible, as the shell was meant to explode underwater next to the hull of a ship, much like a mine. Some called the gun an "aerial torpedo projector," which seems more apt than comparing it to traditional artillery. Zalinski envisioned his guns as a key part of harbor and coastal defense to supplement mines.

Tests of the new weapon were very positive as it proved fairly accurate and the explosions impressed any spectator. However, the unusual nature of Zalinski's invention led many in the Army to oppose the gun. The Department of the Navy did not share these concerns, as its Bureau of Ordnance was already deeply invested in the development of new weapons, even constructing its own modern factory during the 1880s to maintain complete control over the process.

The situation was ripe for unique innovations, so in 1886 the Navy pushed for a dynamite gun cruiser, which Congress promptly approved even though there was no guarantee that the weapon would be effective onboard a ship. In addition, the decision was made before the guns had been tested against a real naval target (all tests before had been stationary land targets). While the maker of the gun (the Pneumatic Dynamite Gun Company) pushed for a test involving one of the aging Civil War-era monitors, it had to settle for an old wooden schooner. While it was a disappointing target for publicity purposes, the dynamite shell did its work, obliterating the ship to the delight of the spectators.

Riding high with the success of this test, Zalinski created an even larger gun, this time with a 15-inch bore. Three of these guns would become the main armament for USS *Vesuvius*, the new dynamite gun cruiser. The ship was commissioned in 1890, with a sister ship planned. The vessel had an unusual "yacht-like" appearance, as it was long, narrow, and close to the water. *Vesuvius* was clearly not the normal late-19th century warship.

While the ship seemingly captured the public's imagination, the Navy



The rear sections of the gun (such as the middle and starboard tubes in the photograph) could be lowered to accept the 7-foot-long projectiles from rotary magazines under the main tubes, then raised again to fire through the breach of the upper tube. (Detroit Photographic Co. Collection, Library of Congress)

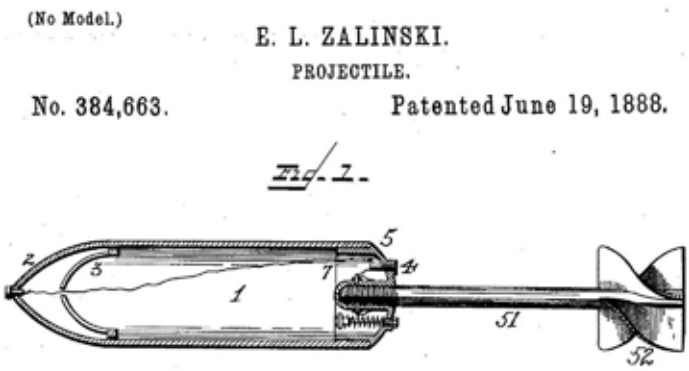
seemed to sour on the ship's practical limitations. *Vesuvius* appears to have been constructed around the pneumatic guns, which took up nearly the forward third of the ship. The breech and loading design for the guns was quite ingenious, utilizing a rotary magazine, like the cylinder of a gigantic revolver, for each tube. However, because the tubes were set into the ship (as opposed to turrets or gun mounts), the only way to aim was to steer the ship towards the target. In addition, the guns had a much shorter range than was standard for capital ships of the time.

Because *Vesuvius* was unarmored and had an explosive cargo, this change led to significant fears. The anxiety of being outranged by enemy ships appears to have factored heavily into much of the Army's opposition to using these guns for coastal defense, which the Navy seemed to realize too late. Problems with the air compressors also led to inconsistencies in range and accuracy.

Other limitations included heavy rolling (a product of her narrow beam) and a wide turning radius. In the end,

"Giant's Cough"
Continued on Page 6

A Navy Machinist adjusts the air pressure flowing from air compressors into air storage tanks, where pressure as high as 1,000 pounds per square inch was maintained in order to shoot the 10.5-inch-wide projectiles (below). A witness to one of Edmund Zalinski's early tests recalled, "an engineer turned a crank up by the breech, there was a sudden hiss as of steam escaping from a locomotive, and the next instant, with a screech like a monster sky rocket, the projectile went sailing into space." (Detroit Photographic Co. Collection, Library of Congress)

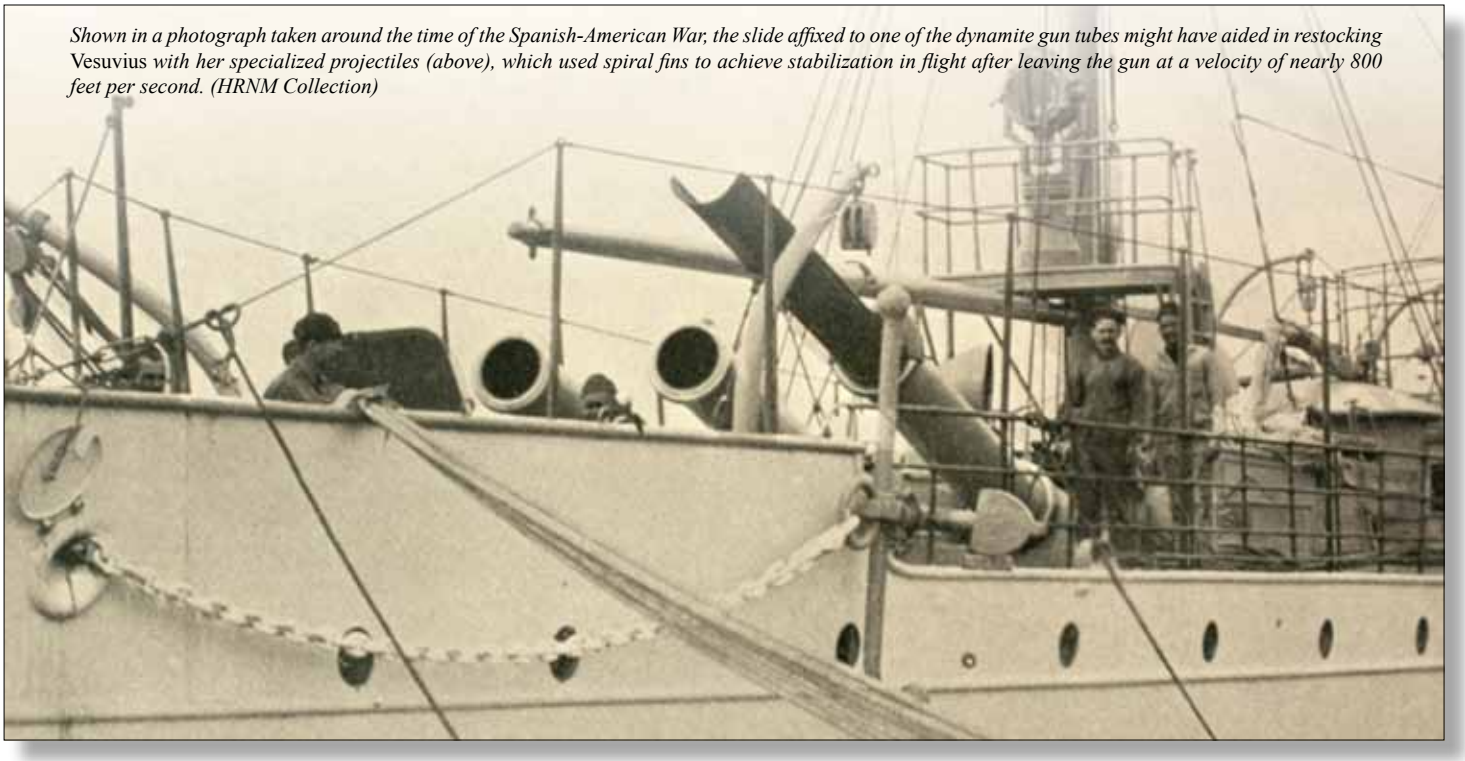

(No Model.)

E. L. ZALINSKI.

PROJECTILE.

No. 384,663. Patented June 19, 1888.

Fig. 1.


Shown in a photograph taken around the time of the Spanish-American War, the slide affixed to one of the dynamite gun tubes might have aided in restocking Vesuvius *with her specialized projectiles (above), which used spiral fins to achieve stabilization in flight after leaving the gun at a velocity of nearly 800 feet per second. (HRNM Collection)*

"Giant's Cough"
Continued from Page 5

the idea was better than the product. Needless to say, the planned sister ship was quietly canceled.

Even with all of these shortcomings, USS *Vesuvius* appeared to remain popular enough with members of the general public who had heard or seen the power of dynamite. From 1895 to 1897, the vessel underwent repairs and refitting. When the Spanish-American War started, *Vesuvius* was sent south to the Caribbean for blockade and dispatch duty. In the summer of 1898 she was utilized for nighttime bombardment, as her weapons were uniquely suited for this purpose. The ship steamed close to shore and let loose a bombardment, which caught the Spanish soldiers by surprise because there were no flashes and only a sound described by Sailors as a "giant's cough." While the shells did not cause much physical damage, the weapons affected enemy morale because the explosions came without warning. Due to her limited range and the consequential danger from shore batteries during the day, USS *Vesuvius* was limited to nighttime stealth attacks.

Overall, the idea of the dynamite gun seemed to be better than the actual results. Zalinski never received widespread acceptance for the guns in the Army and turned his focus to other matters after the Navy ordered *Vesuvius*. He faced criticism and professional jealousy for several years, along with poor health before ultimately being cashiered in 1894, a year shy of 30 years in service.

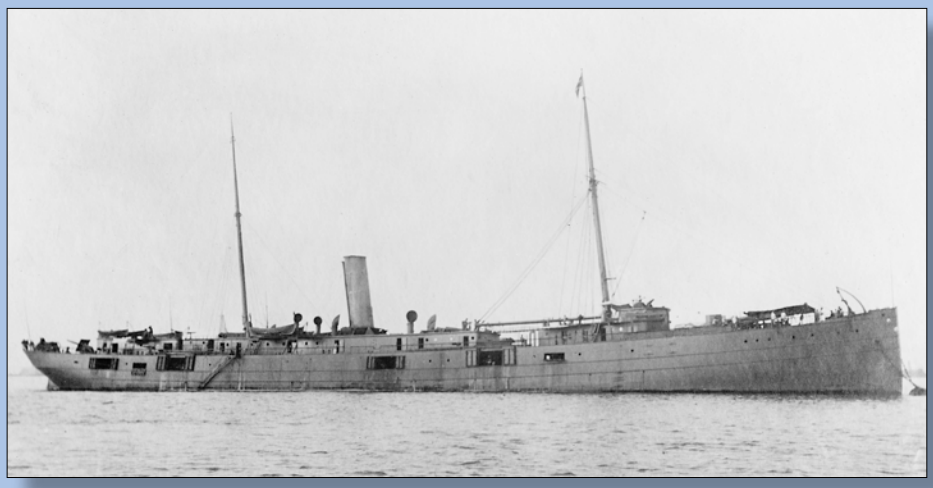
USS *Vesuvius* can be viewed as an example of minds being too quickly enamored with new technology, and so can hopefully serve as a warning of injudicious military spending. But it is also an illustration of how a potentially earth shattering idea can rise from the mind of a schoolteacher to a military weapon in a few short years. Finally *Vesuvius* shows the exciting era of technological change and innovation that marked the Navy's years at the end of the 19th Century.

USS *Buffalo*: The Other Dynamite Cruiser

Made for a Railroad, Sold to Brazil to fight a Renegade Navy, then Bought for the USA

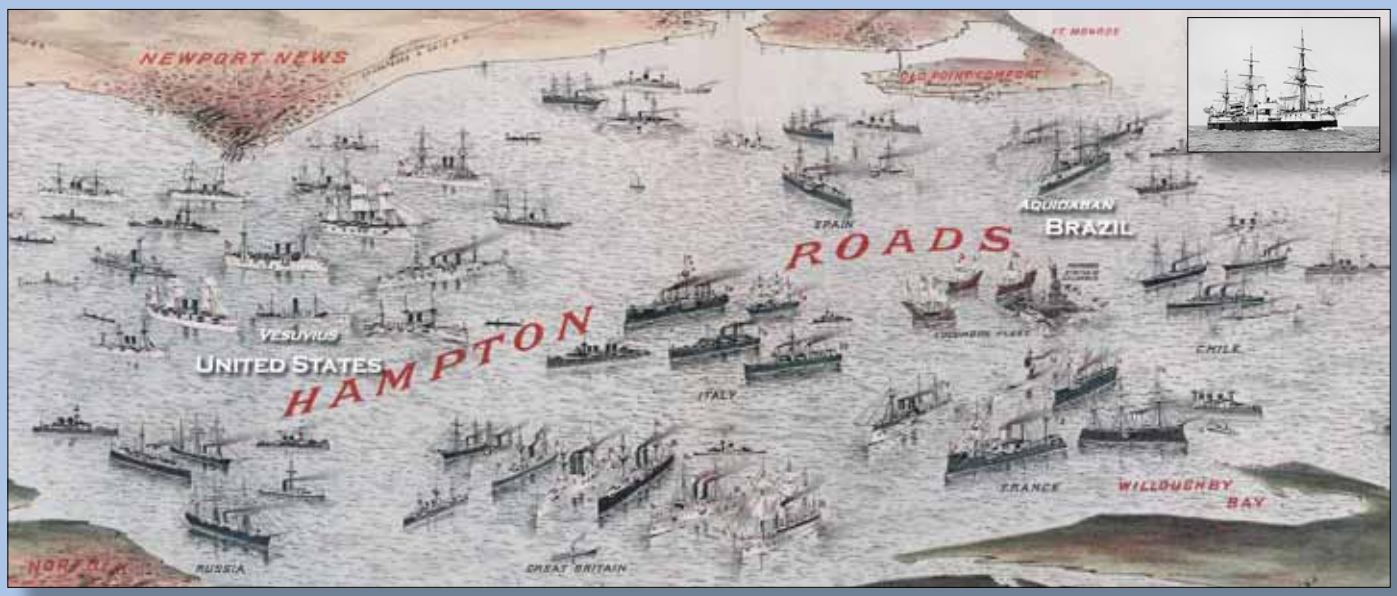
By Clayton Farrington, Editor, *The Daybook*

SS El Cid on the James River *in August 1893. (Courtesy the Mariners' Museum, Newport News, Virginia)*



The Brazilian government cruiser Nictheroy *(Detroit Photographic Co. Collection, Library of Congress)*

Sporting the distinctive red hull, blue funnel and white star of the Morgan Line, the Southern Pacific Railroad's Atlantic steamship service *El Cid*, Hull Number Six made by the Chesapeake Dry Dock and Construction Company (now known as Newport News Shipbuilding), was delivered in August 1893, but she did not stay in the Morgan Line for long. A desperate Brazilian government, which had overthrown the monarchy in 1889, was snapping up ships with which to fight its own navy. A large portion of the fleet, including two battleships and

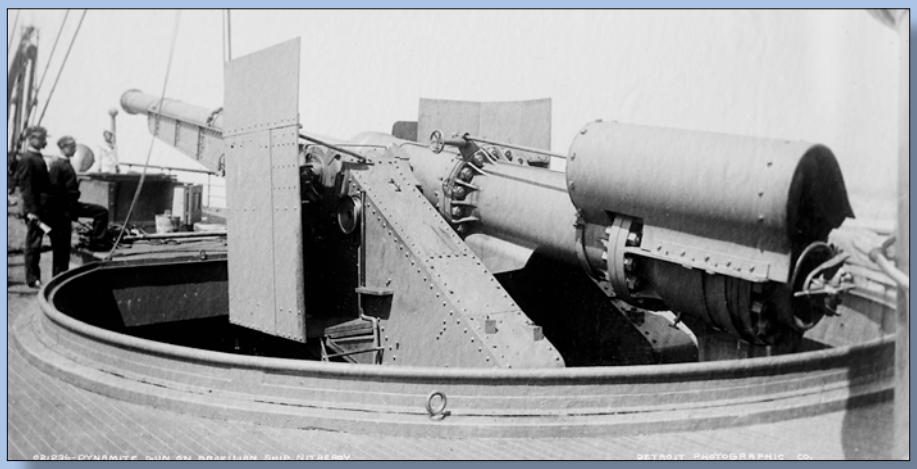


Featured in the museum's Steel Navy gallery, Sam W. Bowman's lithograph of the International Naval Rendezvous of 1893 shows the Brazilian battleship Aquidaban *only five months before she served as flagship of the second revolt against the young Brazilian republic. Rear Admiral Luis Felipe Saldanha da Gama, who would later become one of the revolt's leaders, reportedly declared a dynamite gun he inspected during the event (most likely aboard USS* Vesuvius*, prominently featured on the left) to be "the most wonderful invention of modern times," recommending in his official report to the Brazilian government that they be procured for the navy. The Brazilian government followed through on that recommendation, ironically, in an attempt to defeat Saldanha da Gama. (HRNM Collection) INSET:* Aquidaban *photographed in New York during the Columbian Naval Review a few days after the rendezvous in Hampton Roads ended on April 24. (Library of Congress)*

four cruisers, had broken away in successive revolts in 1891 and 1893.

In November 1891, Rear Admiral Custodio Jose de Melo had become disenchanted with Marshal Manoel Deodoro da Fonseca after his military takeover in November 1889 had forced Emperor Pedro II into exile. Adm. Custodio took complete control of the naval squadron under his command and threatened to bombard Rio de Janeiro, which was then the capital. Deodoro resigned and was replaced by his vice president, Floriano Viera Peixoto. Dissatisfied once again at what he saw as the army's dominance over the government and a lack of adherence to the new republic's constitution, Rear Adm. Custodio once again threatened action against the capital in September 1893 if the new president did not step down. During the six-month-long insurrection that followed, Peixoto's shore batteries faced off against Custodio's fleet in Guanabara Bay.

In October, an exchange of salutes was rendered between the cruisers



A photograph taken by Marc Ferrez of the dynamite gun that was installed on the former El Cid's *forecastle in November 1893. (Detroit Photographic Co. Collection, Library of Congress)*

Newark and *Charleston* and the rebel squadron, and the renegade Brazilian admiral was paid a visit by American Commodore Oscar Stanton, commander of the South Atlantic Squadron. During the diplomatic uproar that followed, Stanton was recalled by the Secretary of the Navy, Hilary A. Herbert, on the insistence of the Department of State over his departing from the appearance of neutrality and giving recognition to the insurgents. The head of the Brazilian Naval Academy, Rear Admiral Luis Felipe Saldanha da Gama, defected to the insurgents in December, vowing to prosecute the siege more strongly. The State Department feared that American shipping would soon be subject to attack.

After *El Cid's* purchase by Peix-

The Other Dynamite Cruiser
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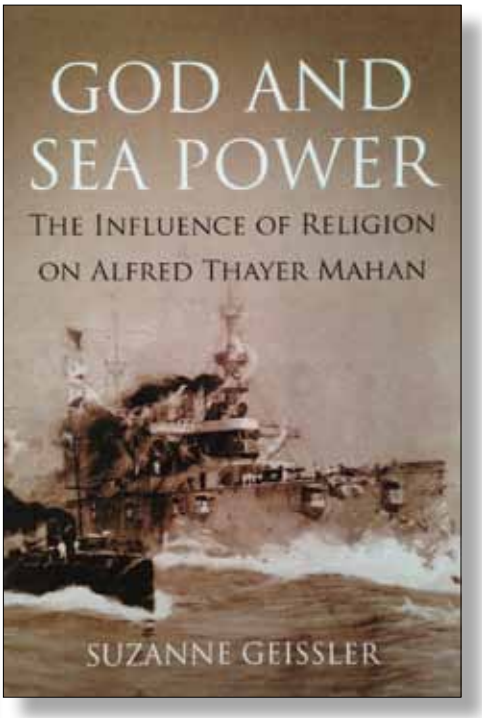
Book Reviews

God and Sea Power: The Influence of Religion on Alfred Thayer Mahan

By Suzanne Geissler

Reviewed by Christopher L. Kolakowski, Director, Douglas MacArthur Memorial, Norfolk, Virginia



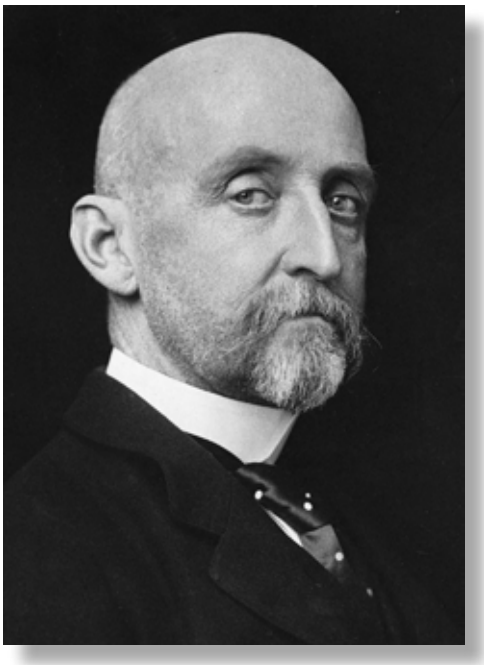
Rear Admiral Alfred Thayer Mahan is one of the most influential naval thinkers of the last 125 years. His works about naval war and strategy influenced virtually all major navies of the 20th Century and continue to be relevant into the 21st. Mahan's *The Influence of Seapower Upon History 1660-1783*, arguably his seminal work, has never been out of print since publication in 1890.

Suzanne Geissler, *God and Sea Power: The Influence of Religion on Alfred Thayer Mahan*. Annapolis: Naval Institute Press, 2015. ISBN 978-1-61251-843-5.

Numerous studies of Mahan's ideas have been published over the years, discussing most aspects of his writings. The most recent of these is Jon T. Sumida's *Inventing Grand Strategy and Teaching Command: The Classic Works of Alfred Thayer Mahan Reconsidered* in 2000. There have also been several biographies of Mahan, most notably by W.D. Puleston in 1939 and Robert Seager in 1977. With this extensive coverage, why is another study needed?

Enter Suzanne Geissler, a Professor of History at William Paterson University and religious history scholar, with *God and Sea Power*. She argues that previous biographers have either misunderstood or underplayed the role of religion in Mahan's life and writings, and as a result "the view of Mahan is seriously incomplete." To understand Mahan more completely, religion must be included, and this book seeks to illuminate that aspect of him.

After a short introduction and review of previous biographies and writings, she proceeds through Admiral Mahan's life, from birth in 1840 to his death in 1914. She starts by discussing the admiral's family, including his father, West Point professor Dennis Hart Mahan, and uncle Milo Mahan, a prominent Episcopalian clergyman. Further chapters trace Mahan through the Naval Academy, service in the Civil War and around the world, a religious awakening about 1870, marriage and family, and his famous writings. The



Alfred T. Mahan in 1900. (Library of Congress)

longest chapter in the book is "A Public Christian," which examines Mahan's post-retirement writings on religion, which are often overlooked. Throughout, she uses Mahan's publications and personal papers, including family letters, to give a vivid portrait of the man and his character.

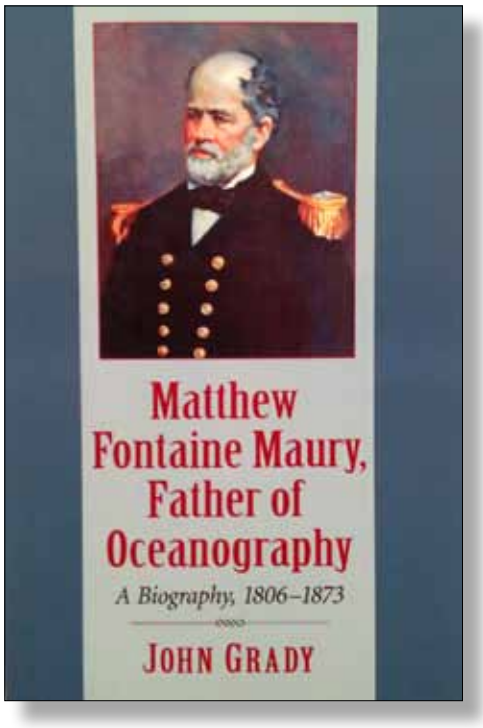
Despite this structure, this book is not a narrative biography; rather, it is an analytical look at one aspect of the admiral's life. The writing style offers more scholarly analysis than lively narrative. There is little discussion of Admiral Mahan's military career or analysis of his writings apart from the religious aspects. In several cases while discussing Mahan's books (such as his underappreciated biography of Farragut or an anthology on naval leaders), Geissler explicitly dismisses any discussion except religious topics. However, her analysis seems to find little overt religious influence on Mahan's military writings. As an example, in her review of *The Influence of Seapower Upon History* she cites Mahan's Protestantism as a possible factor in why he venerates the Protestant English and Dutch over the Catholic nations of France and Spain. Her neglect of Mahan as a naval officer leaves unexamined the question of how much Mahan separated religion from his professional life. Significantly, Admiral Mahan did not start publishing on religious topics until after his retirement from the Navy in 1897. Geissler is on far stronger ground with Mahan's religious writings, and offers insightful analysis.

God and Sea Power is an important book on Mahan, but by no means is it comprehensive or definitive. In fairness, it was not necessarily intended to be. Readers looking for a good basic biography of Admiral Mahan should read Puleston or Sumida's books mentioned above, and use Geissler's study to round out the story.

Matthew Fontaine Maury, Father of Oceanography: A Biography, 1806-1873

By John Grady

Reviewed by Matthew Krogh, HRNM Interpretive Volunteer



Matthew Fontaine Maury, whose statue remains steadfastly moored on Monument Avenue in Richmond, Virginia, is one of the lesser-known, but more chimerical figures on that vaunted street. Unlike the other statues, Maury sits in a chair, becalmed, as if safely in port. He wears civilian clothes with a Bible at his side, leading the uninformed to think he must have been a well-known preacher. This is an accurate representation of the man described in John Grady's new biography, a long overdue addition to those already written about this underappreciated American icon.

John Grady. *Matthew Fontaine Maury, Father of Oceanography.* Jefferson, NC: McFarland and Co., Inc., 2015. ISBN 978-1-4766-1808-1.

In 1941, one of Maury's descendants, Anne Maury, published a book of letters and diaries covering five generations of Maurys and their travels. *Matthew Fontaine Maury: Scientist of the Sea,* was written by Frances Williams in 1963 and included a whopping 720 pages of antiquarian history. *Tracks in the Sea: Matthew Fontaine Maury and the Mapping of the Oceans*, by Chester Hearn, published in 2002, splendidly covered Maury's scientific and professional achievements in the age of clipper ships. Beyond his professional successes, however, Maury's life was also characterized by personal triumphs, devotion, as well as privation in personal, military, and political circles.

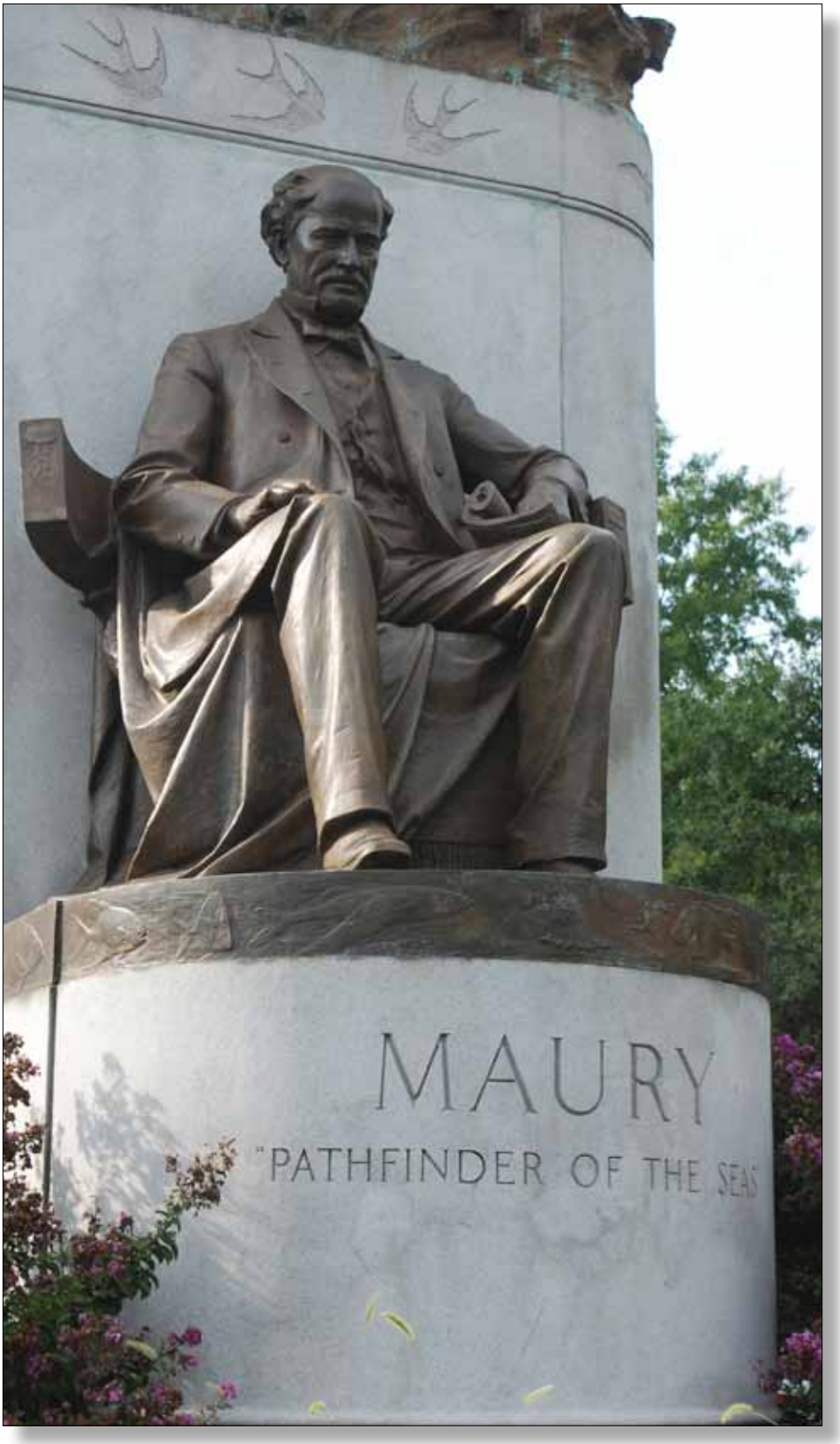
Grady goes beyond the straightforward religious Southern gentleman that was Maury into the dichotomies that defined his life. Maury pioneered a mine that destroyed numerous ships during the Civil War, but his lifetime focus was on research and writing. He preached Southern rights but wanted to rid the South of slavery. He spent over 35 years in the U.S. Navy, attaining the rank of commander, but quickly resigned to serve the Confederate cause with the same rank despite the fact that many others who turned their backs on long Navy careers to embrace the Confederacy quickly rose through the ranks. Unlike Robert E. Lee and Stonewall Jackson, his companions on Monument Avenue, Maury is not well known in the Old Dominion. However, Grady's well-researched manuscript seeks to change that perception with a fresh and inquisitive view of one of America's most dynamic but unappreciated leaders of the nineteenth century.

Maury's personal life is explored in great detail in Grady's book. Perhaps too well. Although important to the development of Maury's life, the reader is constantly reminded of his family's poor beginnings and outcast status. Clearly, this played on Maury's psyche throughout his life, but did he really have a chip on his shoulder about the shame his family bore by leaving Virginia for the wilds of Tennessee? Was his agrarian upbringing in the back of his mind as his financial affairs fluctuated like the tempestuous high seas?

Another facet of Maury's life that is given much attention is his Christian ancestry and upbringing. His family was descended from French Huguenots and his grandfather, Reverend James Maury, mentored Thomas Jefferson. Surely the religious nature of his family impacted Matthew Maury's research and writing. Grady makes it clear that Maury blended scientific ideas with ecclesiastical theory in order to satisfy his devotion to his faith. As a husband and father, Maury stood as an example of Southern honor and patriarchal decorum. He constantly worried about his family's welfare and sent money and inquired about relatives during his extensive travels. In fact, throughout the book it is clear that Maury, the "pathfinder of the seas," would have preferred to remain at home with his wife and children. He maintained an extensive itinerary only to prove himself as scientist and gain glory for God, family, and country.

According to Grady, Maury's military life was not that of a "Master and Commander," although it could have been. Due to physical injuries and political infighting, Maury only served on a few US Navy vessels as a youth, including USS *Brandywine*, which shuttled General Lafayette back to France after his American tour in 1825. Maury's leadership did not spring from the heat of battle but originated in the ephemera of logbooks. Grady connects Maury's early naval service to his succeeding positions by describing his affinity for science and navigation, both of which were ripe for technological advancement. Indeed, Maury's later years were spent commanding the National Observatory in Washington, D.C. and overseeing the divination of the ocean's highways for the prosperity of western nations. Perhaps his greatest fame occurred during the Civil War when he accepted the rank of commander in

the Confederate Navy. Maury was hailed as a patriot by the Southern press as the "Chief of Sea Coast, River and Harbor Defenses" and he worked diligently to secure Virginia against the Union Navy. His work to design naval mines (torpedoes) also earned him acclaim as a brilliant man on both sides, despite his status as a traitor to the Union.

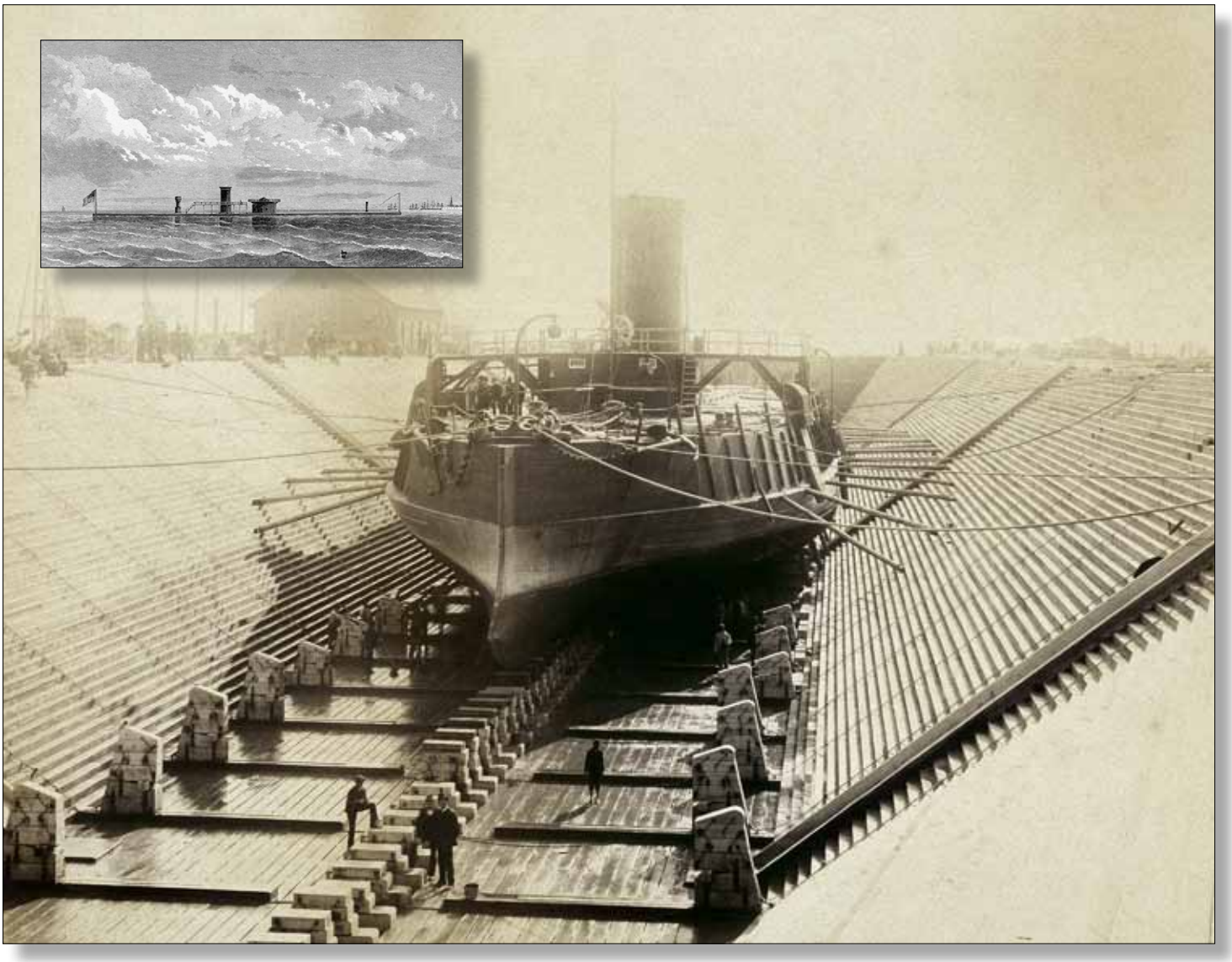


Matthew F. Maury's statue on Monument Avenue in Richmond, Virginia. (Photo by Clayton Farrington)

Grady covers Maury's political trials objectively. Unfortunately, Maury made several powerful enemies throughout his life. Whether or not he was a petulant curmudgeon is not clear, although it is clear that advocating Southern rights and parading his academic accomplishments through the media often led to poor relations with presidents, naval brass, and scientists. In fact, his list of enemies (Samuel Morse, Jefferson Davis, and Alexander Bache) was as long as his list of allies (Robert E. Lee, Sam Houston, and John Quincy Adams). Grady explores these relationships with tenacity and shows the correlation to Maury's career.

Grady also expertly covers Maury's adventures during the Civil War. Maury's greatest political contribution to the Confederate war effort might be that of ambassador, a position he neither sought nor wanted. Maury spent much of the Civil War encouraging England and France to intercede on the Confederacy's behalf. He struggled to outfit Confederate commerce raiders while tangling with Union diplomats. Still, Maury was extolled after the war for his service and as an example of a reconstructed Confederate. Eventually, he came home to Virginia (despite briefly relocating to Mexico), continued his work, and lived peacefully with his family. He taught at VMI and worked hard to help Virginia find new ways to succeed in the Reconstruction era.

Overall, John Grady's volume is filled with political intrigue, militant loyalty, and grand achievements. He makes it clear that Maury's life was more than just a life: it was an epoch that witnessed the U.S. Navy approach navigation and war in a scientific fashion. It was an era that saw the United States end slavery in a geopolitical paradigm shift. It was an age that witnessed Maury devote his life to God, family, and country without compromising his moral compass or his professional ethics. Grady's book should be in the library of every maritime historian, Civil War historian, and Virginia historian and will stand, like Maury's statue on Monument Avenue, for future reflection.



The largest, heaviest, and one of the last warships designed by John Ericsson, USS Puritan (BM-1)*, which he originally named* Protector*, was one of his first attempts to design a true oceangoing monitor. The Navy, however, would not only change her name, but also employ at least two shipyards to make radical modifications to the vessel before her active service finally began. Nearly a decade after her construction was suspended at the close of the Civil War, the partially completed* single-turret monitor *was scrapped and rebuilt at a Pennsylvania shipyard and launched on December 6, 1882.* Puritan *became the first U.S. Navy vessel to undergo service at the Chesapeake Dry Dock and Construction Company's new 600-foot-long Dry Dock Number 1 when it opened on April 24, 1889. The shipyard is now known as Newport News Shipbuilding. (Photo courtesy The Mariners' Museum, Newport News, Virginia)* **INSET:** Puritan *as originally designed. (Naval History and Heritage Command Image)*

The *Puritan* Test

One Experiment Ends in Two Courts-Martial for a Navy Captain

By Sara Gath & Clayton Farrington

During the first decade of the 20th Century, a crisis was brewing within the Navy's Bureau of Ordnance. Dramatic advances in metallurgy, chemistry, and ballistic technologies had resulted in guns capable of hurling heavier projectiles with greater velocities at longer ranges than ever before. Despite this, in contrast to most other technologies adopted since the advent of the Steel Navy nearly two decades before, gunnery performance had not substantially improved.

Precision-made rifled barrels, breech-loading mechanisms, hydraulic rammers and electric firing systems had vastly improved rate of fire, yet this increase in quantity had not resulted in a improvement in quality. Nowhere was this lingering deficiency made clearer than during the Spanish-American War. Although the Navy's performance contributed mightily to the victory, its sterling performance did not extend to its guns, particularly larger-caliber guns (generally 10, 12, and 13-inch models). At the Battle of Santiago de Cuba on July 3, 1898, for example, the largest guns scored only

The *Puritan* Test
Continued on Page 14

This poster from our Steel Navy Gallery has been modified slightly to show some of the vessels featured in this issue. (HRNM Collection)

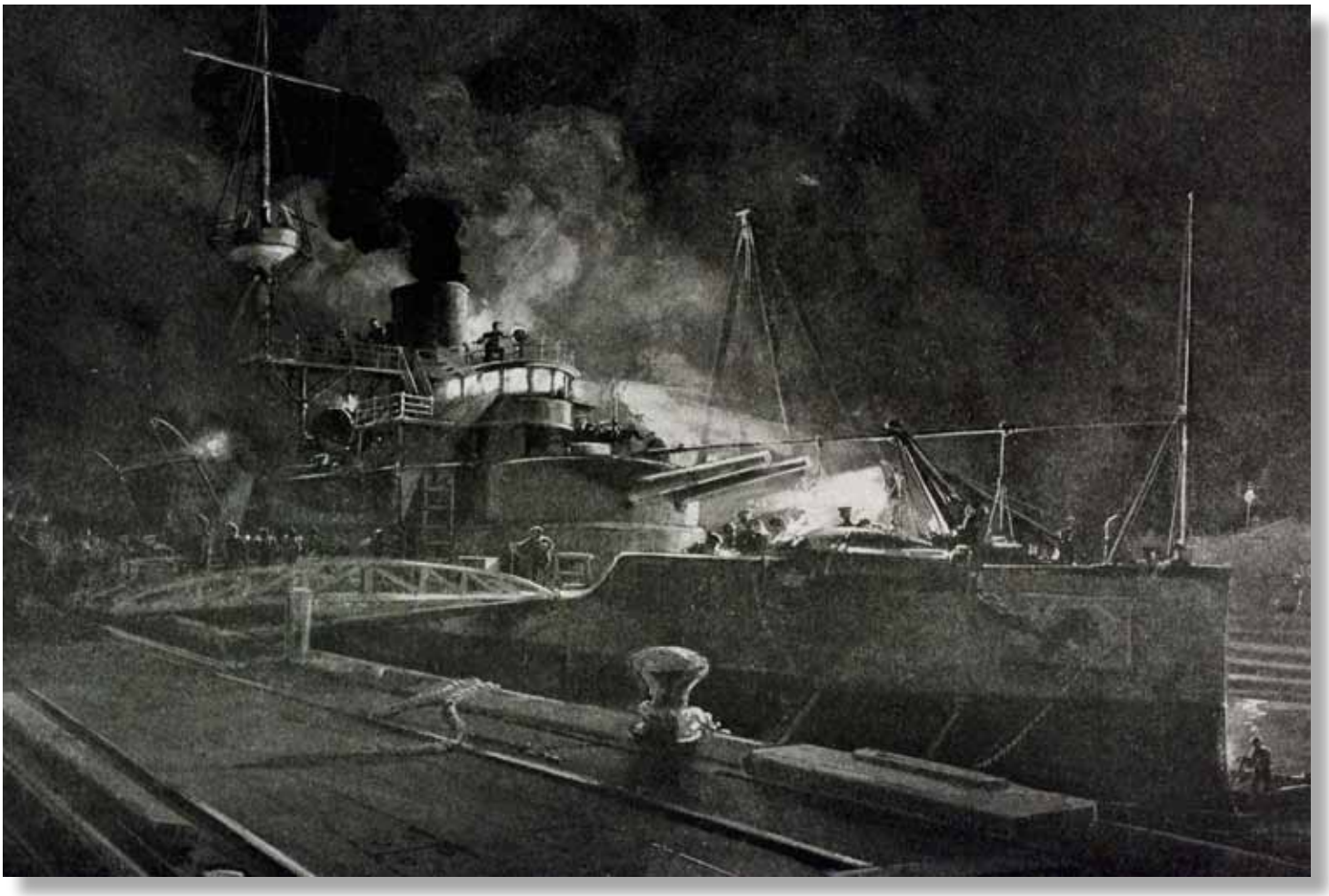

THE MAINE
USS BUFFALO
USS PURITAN
USS HOLLAND
BROOKLYN
COLUMBIA
OREGON
WISCONSIN
PUBLISHED BY C. A. MUSSELMAN, 1215 FILBERT ST. PHILADELPHIA.
S NAVY, 1898.

Sources disagree as to exactly when this photograph was taken at the New York Navy Yard in Brooklyn by Edward H. Hart of the Detroit Photographic Company, but this is where Puritan's *transformation from an ironclad into a modern steel warship was completed, including the installation of her 14-inch guns (under the crane at the right side of the image). She was officially commissioned there on December 10, 1896, and assigned to the North Atlantic Squadron in Hampton Roads. (Library of Congress)*

The *Puritan* Test
Continued from Page 11

two of the estimated 130 hits scored against Admiral Pascual Cervera's squadron. This was out of nearly 6,000 shells fired, a success rate of only 2.2% for all guns.

One of the American naval officers who took part in that battle, Captain (later, Rear Admiral) Newton E. Mason, became chief of the Bureau of Ordnance in August, 1904. He and a number of other officers such as William S. Sims and Bradley A. Fiske were keenly aware that the Navy could not rest upon its



Entitled "Night Work on the Monitor Puritan," this illustration by W. Louis Sonntag, Jr., shows preparations being made before the ship began blockade duty off the coast of Cuba in April, 1898. (HRNM Collection)

USS Puritan *makes her way under the Brooklyn Bridge, through the icy East River, presuably not long after her commissioning on December 10, 1896. With a length of 289 feet, 6 inches, a beam of 60 feet, one inch, and a draught of 18 feet, USS* Puritan *was extensively modified during her over two decades of construction and development, looking like the missing link between a monitor and a battleship by the time she was finally completed. (Library of Congress)*

laurels after defeating the Spanish, whose skill at gunnery thankfully was even worse than theirs. A future enemy might not be as easily outclassed.

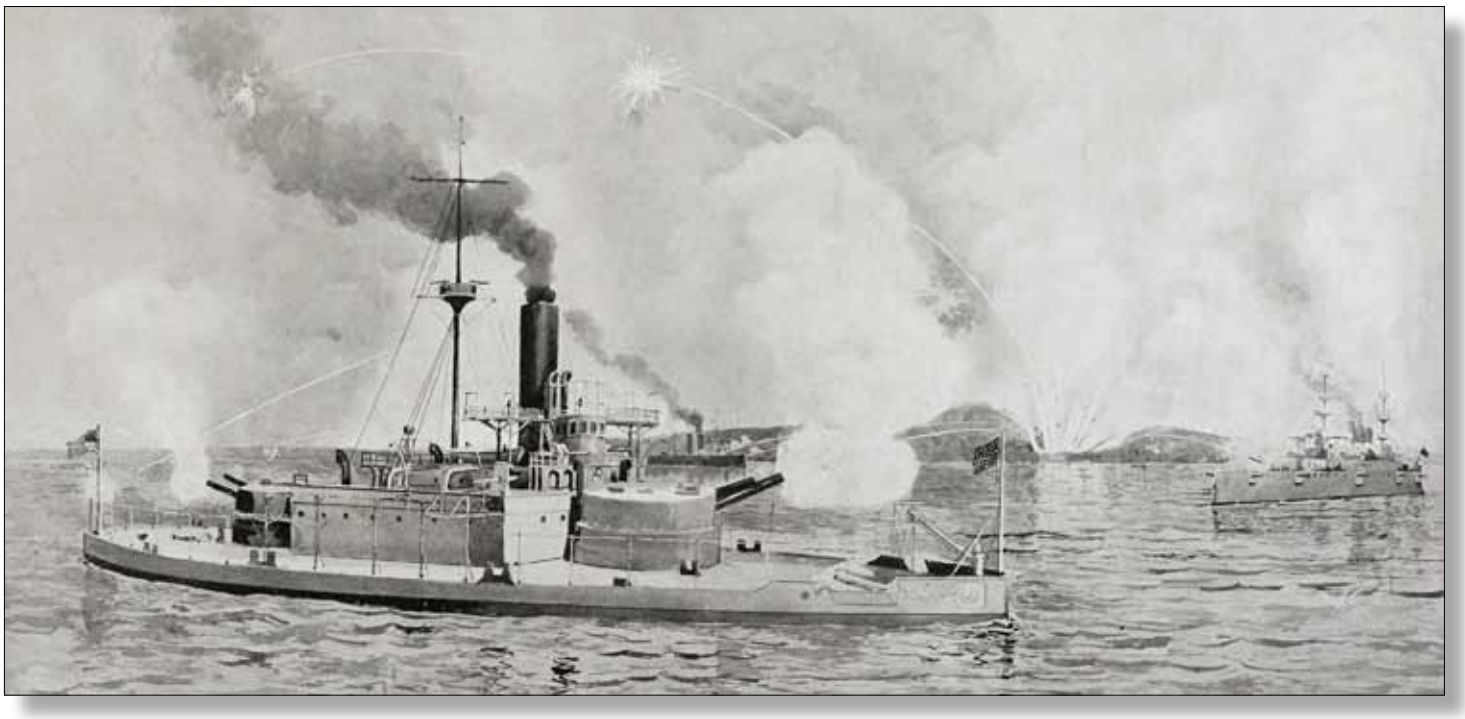
The following May, Vice Admiral Heihachiro Togo's gunners showed themselves as just that kind of potential foe. Commander Sims, then stationed in the Far East, wrote a colleague in 1906 that the Japanese had scored a 19.6% success rate against the Russians at the Battle of Tsushima, arguably one of the greatest naval victories of all time. Russian navy Captain Vladimir Semenoff's lurid tale of destruction from aboard the flagship *Kynaz Suvoroff*, published for the first time in English in December 1906, contained a passage undoubtedly alarming to any American gunnery officer reading it:

"Such havoc would never be caused by the simple impact of a shell, still less by that of its splinters. It could only be caused by the force of the explosion. The Japanese had apparently succeeded in realising [sic] what the Americans had endeavoured [sic] to attain in inventing their 'Vesuvium.'"

Once regarded as a weapon that would revolutionize naval warfare, the Navy had since lost its faith in Edmund Zalinski's diminutive "dynamite cruiser" USS *Vesuvius* and her pneumatically fired guns during the preceding decade, due in part to the inconsequential role the guns played during the Spanish-American War. Even though *Vesuvius* had practically been constructed around the guns during the late-1880s, they were removed and replaced with conventional torpedo tubes before she was recommissioned as a torpedo testing vessel in June 1905.

With the removal of Zalinski's guns, the Navy seemingly turned its back on a concept dreamt of well over 20 years before: a shell so destructive that it did not require pinpoint accuracy in order to devastate a warship. Spurred on by the possibility that other navies had successfully developed this type of shell and a new type of high explosive suited for it, however, the Bureau of Ordnance under Rear Adm. Mason renewed its efforts to find a successful successor to Zalinski, testing the wares of an assortment of entrepreneurial ordnance inventors.

The naval expansion that took place during the administrations of Theodore Roosevelt and William Howard Taft, inspired by the writings of Capt. Alfred T. Mahan, was predicated on employing the latest technologies in all aspects of naval warfare. This created an unprecedented era of opportunity for inventors such as George Westinghouse, who made steam turbine propulsion practical for large Navy vessels, and Elmer Sperry, who pioneered gyroscopic compasses that transformed navigation for the Navy. Many of the cornerstones of what later became known as the military-industrial complex were founded upon supplying new technologies necessary for the Navy to project its power around the world during this time.



USS Puritan's *finest hour, or, to be more specific, 18 minutes, came on April 27, 1898, when under the command of Captain B.F. Harrington she joined Rear Admiral William Sampson's flagship* New York *(ACR-2) and the protected cruiser* Cincinnati *(C-7) to bombard fortifications at Matanzas Bay, 65 miles east of Havana, during the first naval action of the Spansh-American War. She is depicted completely destroying the Spanish fort at Rubal Cava, which began the battle with a challenge shot directed at the American vessels. After the war, she served the Naval Battalion of the District of Columbia before funally being decommissioned in April 1910. (HRNM Collection)*

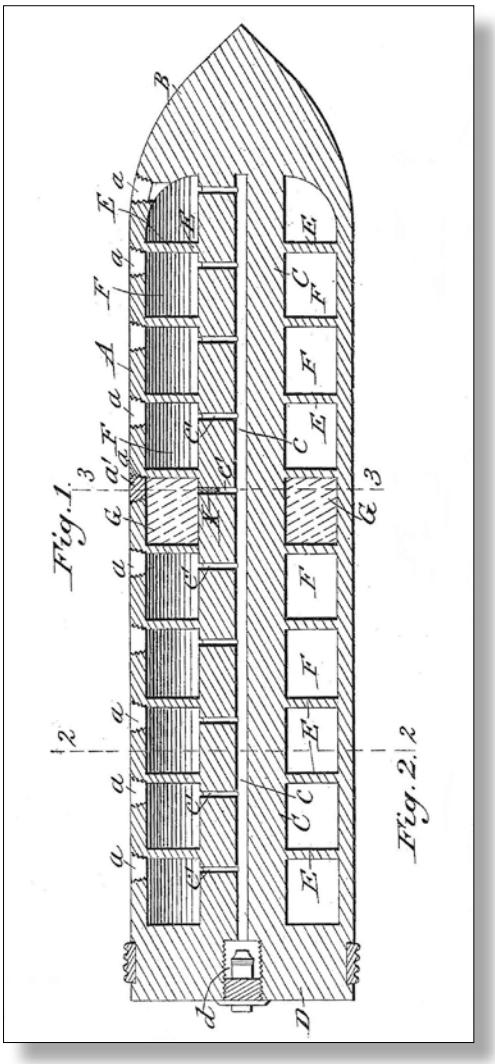
Enter Willard S. Isham, self-described former mining and civil engineer, who wanted to join the ranks of such military inventors. Rear Adm. Mason and other ordnance chiefs would have to contend with Isham as they sought out and tested devices that could potentially make large caliber guns more effective.

Isham had turned his ambitions towards ordnance design and development during the late-1890s. His early career appeared promising, at least in the newspapers, where one success after another was reported throughout his early forays into ordnance testing. One example stands out: On July 10, 1898, the *St. Louis Republic* reported that Mexican President Porofirio Diaz and the Commanding General of the U.S. Army, Lieutenant General Nelson A. Miles, had traveled to Mexico to watch the second trial of Isham's shell. Like the other more established inventors who had come before him such as Edmund Zalinski, Hudson Maxim, and Louis Gathmann, Isham was working to perfect his own version of a "torpedo shell." His designs promised to utilize standard artillery pieces and ships' guns to inflict the type of damage that stationary submarine mines, still also known as "torpedoes," had only been able to accomplish until then. One reason a conventionally-fired torpedo shell had not been successfully tested was because of the tremendous stressors placed upon an artillery round by heat, shock, and pressure. The firing charge could easily set off explosives such as dynamite before the shell left the barrel. The only workable torpedo shell the American military had ever deployed operationally was fired from Zalinski's pneumatic smoothbore gun. Zalinski originally described it as an "aerial torpedo projector" designed to deliver a "submarine" charge through the air into the water around enemy warships, negating the necessity of deploying submerged mines well in advance of an approaching enemy vessel.

> ***"…[Isham] offered a practical means of throwing a large charge of such explosive from any of our large guns to distances of 9,000 to 10,000 yards with safety to guns and gunners. This has never been accomplished before. Our Government has expended hundreds of thousands of dollars during the last 15 years in trying to do it, but without success."***

But even the 15-inch coastal defense guns produced by Zalinski's Pneumatic Dynamite Gun Company could only throw a 50-pound projectile at most 5,000 yards. It quickly became apparent to the Army's Board of Ordnance and Fortification that Zalinski's weapon would not meet the challenge posed by new types of armor. Conventional naval guns could also target the pneumatic guns with greater accuracy long before coming into their range. As a result, the Army followed the Navy's lead in declaring Zalinski's pneumatic coastal defense guns obsolete in June, 1901.

Around that time, Isham convinced Rear Adm. Charles O'Neil, Mason's predecessor as head of the Bureau of Ordnance, to endorse experiments based upon the successes he claimed to

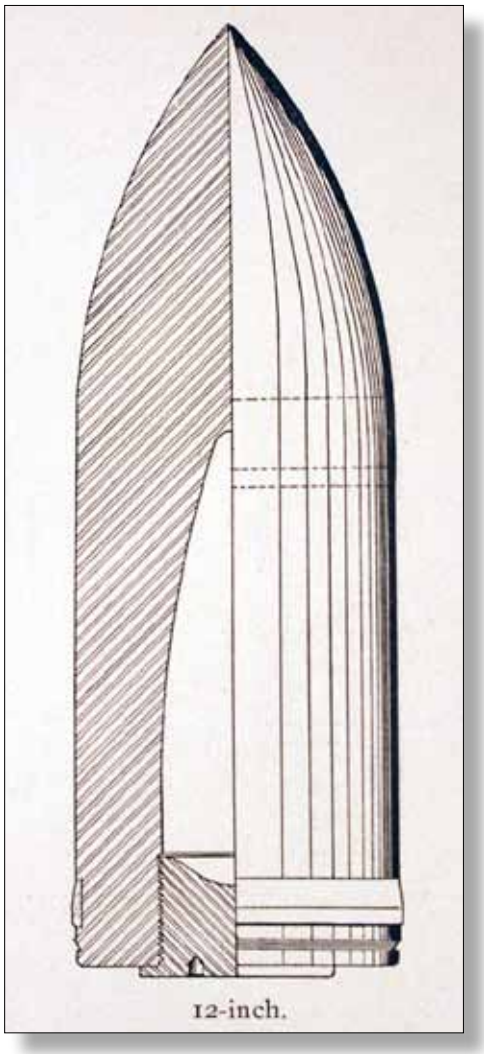


Willard S. Isham's torpedo shell design as submitted on his patent application, featuring chambers which he claimed could prevent the premature detonation of high explosives. (Google Patent Archive)

have achieved during the tests conducted in Mexico. Isham promised a shell capable of carrying larger amounts of high explosive than was thought physically possible, without risking premature detonation, by separating the shell's interior into segmented chambers along its longitudinal axis. Isham claimed that he could mathematically determine the maximum height of the chambers using his own proprietary derivative of formulas used for ordnance at the time. "I have discovered the law relative to the pressure on the bursting charge of high explosives due to the pressure of the firing charge," Isham wrote on his patent application, "and as a result of such discovery I am enabled to construct shells for high explosives of any kind."

Through his ability to influence certain members of Congress, Isham would get the funding to test his shell and preferred explosive, Thorite. According to a report in the Norfolk *Virginian-Pilot*, the explosive was composed of 92% nitroglycerin, 7% guncotton (now known as Nitrocellulose), and 1% marble dust. In January 1900, Representative William W. Grout of Isham's home state of Vermont introduced a bill authorizing $500,000 to acquire the patent rights to manufacture Thorite and the Isham Shell. Intense debate followed. Military leaders such as Colonel Beverly W. Dunn, who had once evaluated Thorite for the Army and then began marketing his own version, called Dunnite, claimed that both Thorite and the Isham Shell were bad ideas. Other military officers agreed with Grout. During the debate, Army Captain Isaac Newton Lewis, future inventor of the Lewis Machine Gun, appeared before Congress and said: "…[Isham] offered a practical means of throwing a large charge of such explosive from any of our large guns to distances of 9,000 to 10,000 yards with safety to guns and gunners. This has never been accomplished before. Our Government has expended hundreds of thousands of dollars during the last 15 years in trying to do it, but without success."

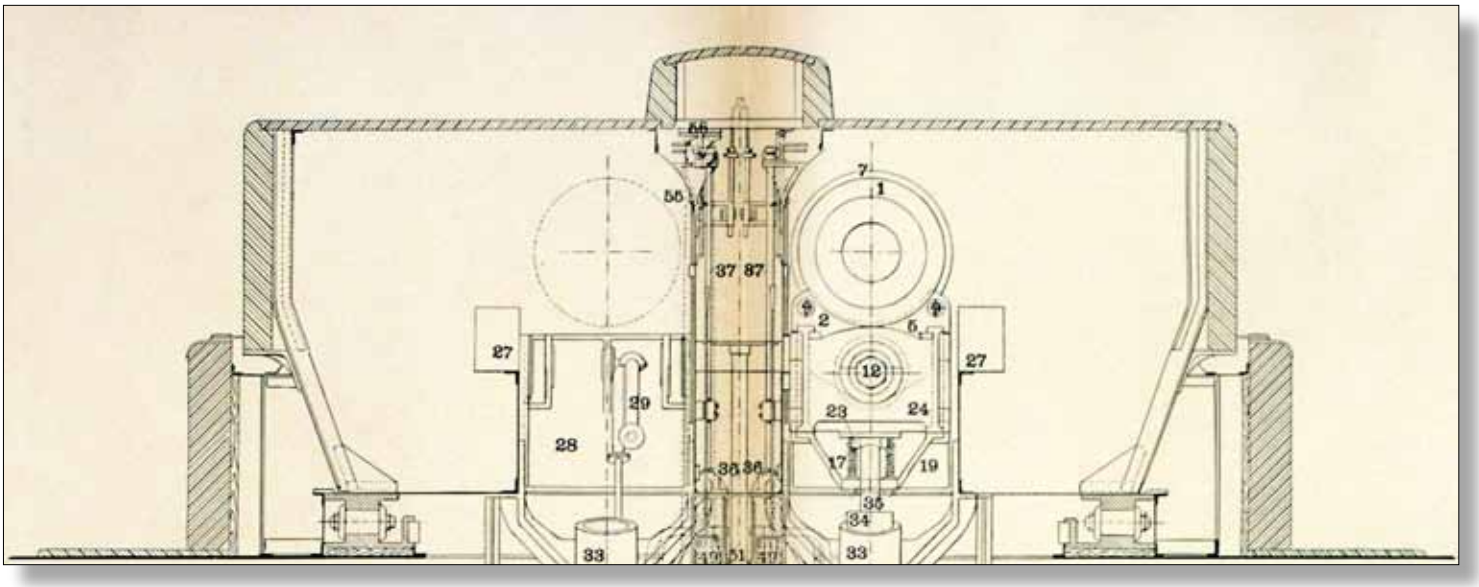
Lewis pointed out the fact that the U.S. military was employing only point blank ordnance experiments. In these tests, Torpedo Shell prototypes were fired with reduced loads at slower velocities to simulate flying a long combat range before hitting a target. The Navy and Army also conducted armor piercing round tests in the same manner. They also used "subcaliber practice" techniques employing smaller guns and projectiles to simulate larger ones. The salient factor remained that due to their disregard of the actual physics of ballistics, the tests bore no resemblance to reality. Armor piercing round penetration was determined by its angle in addition to velocity. Gravity caused the shell's



At the time, standard Navy forged or cast steel armor piercing shells carried within them a bursting charge of fine-grained black powder. A 12-inch forged steel shell like the one shown here in the 1899 Text Book of Ordnance and Gunnery *weighed 850 pounds but only held a 36-pound bursting charge. (HRNM Collection)*

orientation to change. After 10,000 yards, the upper limit on U.S. Navy subcaliber tables before World War I, the shell would not hit the target at a 90 -degree angle, as it did in official point blank tests run in Sandy Hook, New Jersey and Indian Head, Maryland.

Isham's contention was that the Navy's standard armor-piercing rounds did not live up to their name under actual combat conditions, instead shattering or ricocheting if the shell's angle of attack was not perpendicular to the target's armor. While other inventors were adding caps of softer metal to the shells in order to increase their "biting angle" as they struck at an oblique angle, Isham dispensed with the concept



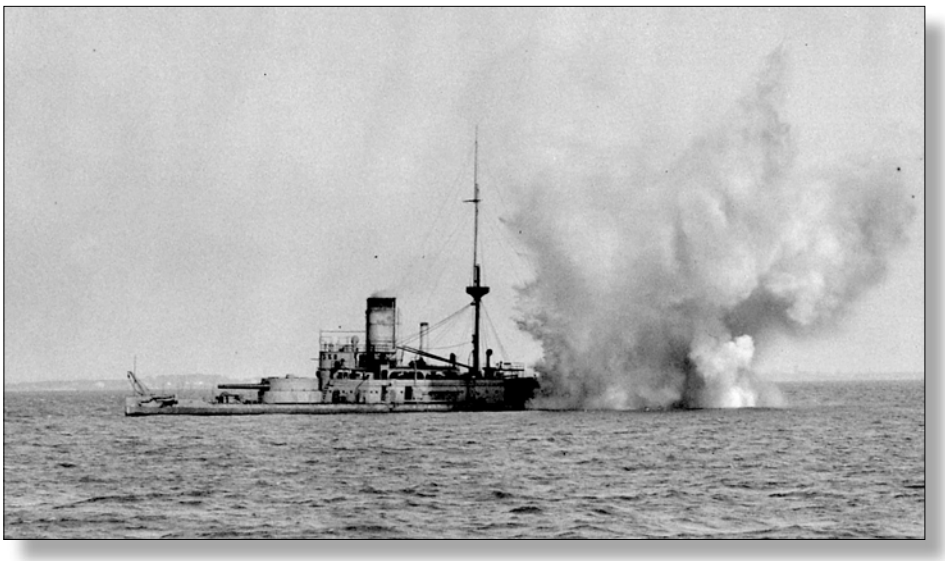
This schematic from the 1899 Text Book of Ordnance and Gunnery *shows a standard Mark II turret mount, which housed 12-inch guns aboard the monitors* Puritan, Monadnock, Monterey, *and* Amphitrite. *The same turret mount type was used for the 13-inch guns aboard battleships* Indiana, Massachusetts, *and* Oregon. *The turret was shielded by 8-inches of armor, while the barbette's armor below it was 14 inches thick. (HRNM Collection)*

***A** photograph taken after the first Thorite detonation shows the large crack in the armor on the port side of* Puritan's *aft turret, where it was pushed in approximately 8 inches. Animals reportedly brought by Willard Isham and placed in crew positions within the turret, however, were uninjured. (Courtesy the Library of Virginia)*

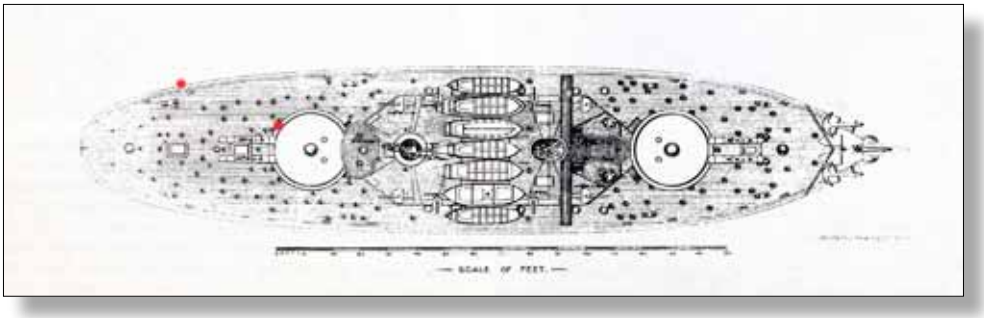
entirely, advocating instead that simply creating as large of an explosion as close to the skin of the ship as possible gave an attacker a greater probability of success. This was a concept well proven by earlier innovators such as Matthew Fontaine Maury and Robert Whitehead, but it had yet to be proven that such a result could be achieved above the waterline.

As was the case with Edmund Zalinski decades before, most officers within the Bureau of Ordnance were reluctant to subject a Navy warship to a live fire test. Isham's allies within the House Committee on Naval Affairs, particularly Alabama Congressman Richmond P. Hobson, the former Navy captain famed for his valiant but unsuccessful attempt to bottle up Adm. Cervera's squadron within the harbor at Santiago de Cuba during the war with Spain, mandated such a test as an amendment to a naval appropriation bill approved in June 1910.

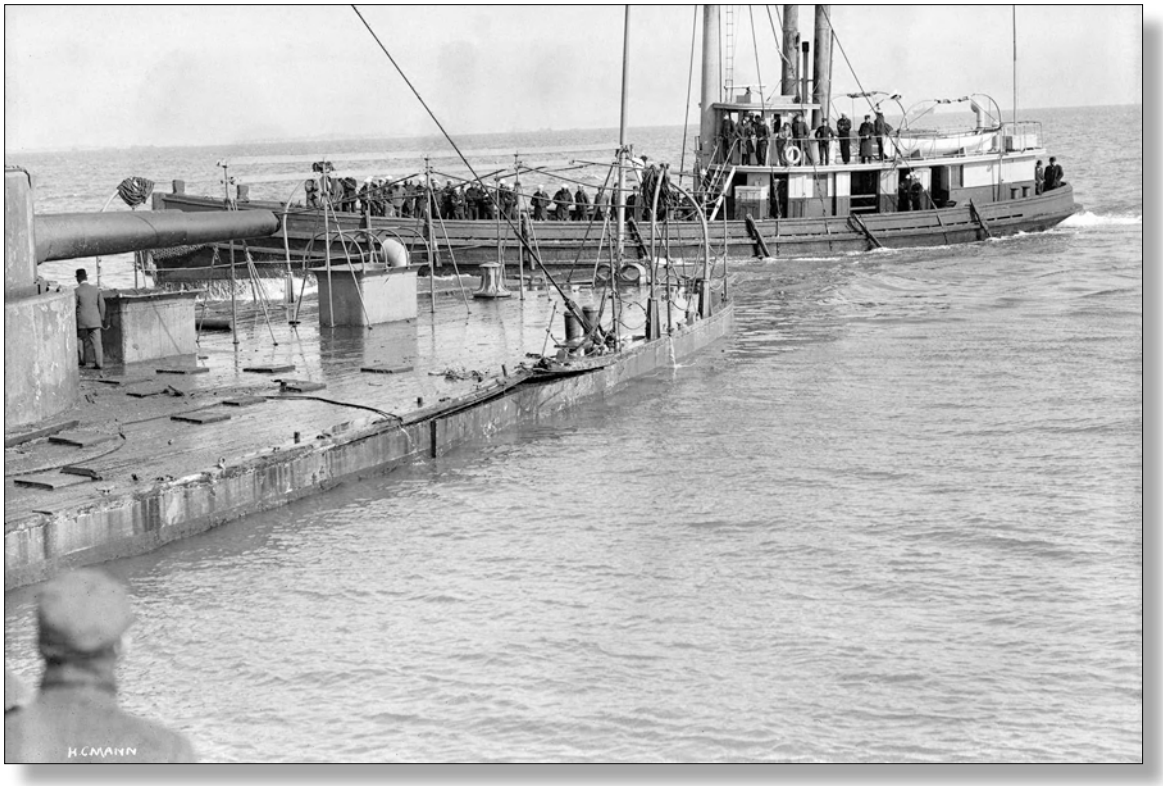
That November, Isham finally got his chance to prove the veracity of his hypothesis when the decomissioned USS *Puritan*, one of the largest and heaviest monitors ever built, was moved to the Middle Ground, an area of shallow water near Craney Island. The November 15 test would be conducted by the Navy's Inspector of Special Ordnance, Capt. Austin M. Knight, who had once served aboard the monitor as a lieutenant. He had been told to ensure the *Puritan* survived severe and violent damage. Knight's sailors placed two 200-lb payloads of Thorite on board for detonation, one against the turret and the second on the waterline. They then strategically mounted pressure



A photograph by Norfolk-based photographer Harry C. Mann showing Isham's Thorite charge detonating around USS Puritan's *waterline* on *her aft starboard quarter. (Courtesy the Library of Virginia)*



USS Puritan's *armor belt extended 160 feet along the waterline and was 14 inches thick amidships, tapering to only six inches thick fore and aft. One 200-pound Thorite charge was set where the belt was 10 inches thick, pushing the plate back approximately 10 inches when it exploded. The other red dot marks roughly the spot where an identical charge was placed on the monitor's aft turret. (HRNM Collection)*



Observers approach to inspect waterline damage after the second Thorite detonation. (Courtesy the Library of Virginia)

A closer photograph of the waterline test reveals that the damage was worse than first suspected. Although the water's depth at the Middle Ground was only one foot deeper than the monitor's draft, salvage crews four days later discovered Puritan had sank seven feet into the mud. (Courtesy the Library of Virginia)

gauges all over the ship, both above and below the waterline. Before retreating to the forward berth deck to trigger the explosives, they also placed a cat and two chickens into the areas inside the turret that the gunners and sighter would normally occupy.

Rear Adm. Mason watched from the tug *Wahneta*, joined by the Army's first Chief of Coast Artillery, Maj. Gen. Arthur Murray, from nearby Fort Monroe. A correspondent working for the *New York Times* described what followed: "The amount of damage done by the explosions surprised the officers. They expected to see only minor damage, and some seemed to think that the paint on the ship would hardly be injured…. It was the opinion of those who witnessed them that, had the explosive been confined, it would have reduced the monitor to scrap iron. Capt. Knight said the second explosion was very severe and he expected the damage to be even greater." Another Washington-based correspondent noted, "The result of the experiment… refutes the contention of naval ordnance officers that the explosion would not materially damage the vessel, but would follow the lines of least resistance and spend its force upward and outward."

"The result of the experiment… refutes the contention of naval ordnance officers that the explosion would not materially damage the vessel, but would follow the lines of least resistance and spend its force upward and outward."

Isham was not surprised by the damage. In fact, he had actually expected the damage to be far worse, as had Capt. Knight. Isham immediately became concerned that the test may have been rigged to protect Col. Dunn's work on Dunnite. At first glance, rigging seemed dubious, but the test results were very puzzling. Despite being equal in size, the explosions were not equal in severity. The media consistently reported that the second explosion was far more severe, and this result should have been impossible.

At the conclusion of the long test day, the participants departed, after being told the monitor would be taken to the dry dock and could be examined the next day. Capt. Knight's wife Elizabeth lay deathly ill at home. In order to be with her after a 20-hour shift aboard the old monitor, Knight contacted Capt. William A. Marshall, Commandant of the Norfolk Navy Yard and Station, and requested that *Puritan* be moved to the dry dock for safe keeping.

The following morning, Isham arrived to discover that the *Puritan* was not in dry dock. To his horror he discovered that she had sunk, was stuck in the mud, and no one knew how to retrieve the vessel. He feared that all the test data was lost. Upon hearing the news, Congressmen were outraged, having appropriated hundreds of thousands of dollars over the last decade and a half, expending the funding on various inventors to determine the best type of torpedo shell. Many of those same inventors had quit, accusing the bureau of corruption and test-rigging. This had been routinely characterized within the bureau as the diatribes of sore losers. After the sinking of a three million dollar warship on its watch, however, the House Committee on Naval Affairs began to look at the bureau more skeptically, wondering if some of the allegations might be true after all. At the very least, the *Puritan's* sinking smacked of incompetence.

A group of congressmen from the Naval Affairs Committee berated Secretary of the Navy George von L. Meyer over the incident for hours, but Meyer decided that he was not going to take the fall over something that he had nothing to do with. He decided that Capt. Knight would be brought up on charges for losing the *Puritan*. The decision to try Knight had probably not been rooted merely in the *Puritan* debacle, as there had been unpleasant

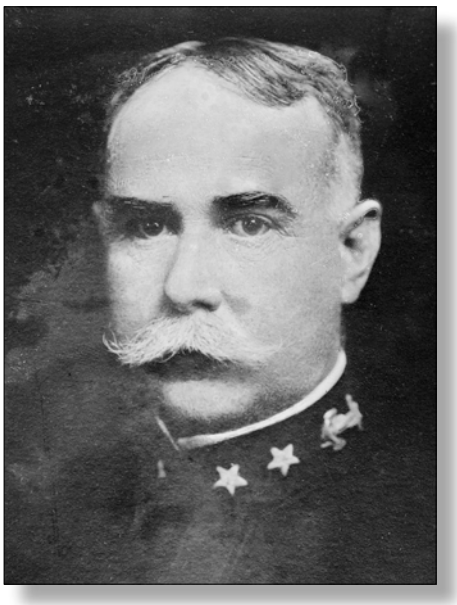
words between the two a year earlier.

A court of seven rear admirals convened at Norfolk Navy Yard shortly after Meyer's decision, where Knight was tried for "culpable negligence and inefficiency in the performance of duty." During the court-martial, Knight documented that his efforts had kept the old monitor afloat for 20 hours, despite being in a damaged condition. Surely that time was more than adequate for Capt. Marshall to bring her to safety. At one point in the hearing one of the judges, Rear Adm. Robley D. "Fighting Bob" Evans, remarked, "Why are you before us? I see no reason at all for your being here." It was obvious to the judges that Knight had done nothing wrong, and he was quickly acquitted.

According to Edwin A. Falk, Evans' biographer, Secretary Meyer was so furious about the acquittal that he wrote an 80-page letter to Evans demanding a retrial. Meyer's letter listed a number of trivial infractions by Knight, to include overspending his travel by $.96. A retrial was assembled, and Knight was acquitted yet again.

Vindication came at a high cost. While Knight had been on trial, he was technically under arrest and not at liberty to leave the Navy Yard. Mrs. Knight had died alone during the retrial, without ever knowing that her husband would be acquitted. "Because of this," wrote Catherine Frances Cavanagh, a writer for the New York literary journal *The Bookman*, "and the fact that Knight is broken over the blot placed on his fair record just about the time he should have been promoted, his brother officers are deeply, though silently, incensed. They claim that he is one of the most studious and conscientious men in the United Service," Cavanagh continued, "and was the victim of the rage for investigations, which seems to obsess a certain destructive element in Washington, who do not seem to realise [sic] that even if they acquit the victim, they send him out scarred for life."

Despite being court-martialed twice and losing his wife in the process, Knight survived both the attacks of Secretary Meyer and his association with Isham. He received his promotion to rear admiral in May, 1911, which was backdated to January 29, and he continued a long and distinguished career, including commanding Naval Station Newport, Rhode Island, serving as president of the Naval War College, and later serving as commander in chief of the U.S. Asiatic Fleet.



Austin M. Knight as a rear admiral (upper half) sometime before his retirement at the end of 1918 (Library of Congress)

"...the fact that Knight is broken over the blot placed on his fair record just about the time he should have been promoted, his brother officers are deeply, though silently, incensed."

Despite retaining Congressional support after the *Puritan* test, Isham's support within the Navy began to wane. Even if some of the principles behind the use of high capacity torpedo shells were proven valid during the test, Rear Adm. Nathan C. Twining, Rear Adm. Mason's successor at the Department of Ordnance, made a convincing case before the Naval Affairs Committee that shells of that explosive capacity and design were simply too dangerous to carry aboard naval vessels. He also chipped away at many of Isham's other claims, including that the Japanese had used torpedo shells during the Battle of Tsushima patterned after his own.

Isham eventually stopped promoting his torpedo shell and moved on to a new invention: the Isham Diving Shell. The fuse was its novel feature, designed to cause detonation even in the event of a missed shot. According to Isham, the diving shell's force under water would be equal to a small capacity torpedo or mine. Testing was slated to begin in 1914 under Rear Adm. Bradley A. Fiske's oversight. Isham was not permitted to access the test site, however. He had been barred for using foul language and for his accusations against many officers in the wake of the *Puritan* test, including an accusation of photo fakery against Twining during Congressional hearings in 1912. Fiske, a disciple of Rear Adm. Evans, would nonetheless prove to be an impartial tester.

Fiske found the idea to have merit but test results revealed that only a portion of the prototypes worked, and there was no easy way to discern the solution. Isham kept on with his work and at the beginning of World War I, he tried to get the British onboard. The British were indeed keen to use the Diving Shell, but against the submarine menace, not its designed target, the battleship. Upon America's entry into the war, the U.S. Navy also purchased the shell. After the Armistice, however, the Department of Ordnance reported that the Isham Diving Shell yielded a high percentage of malfunctions, including duds.

The *Puritan* Test

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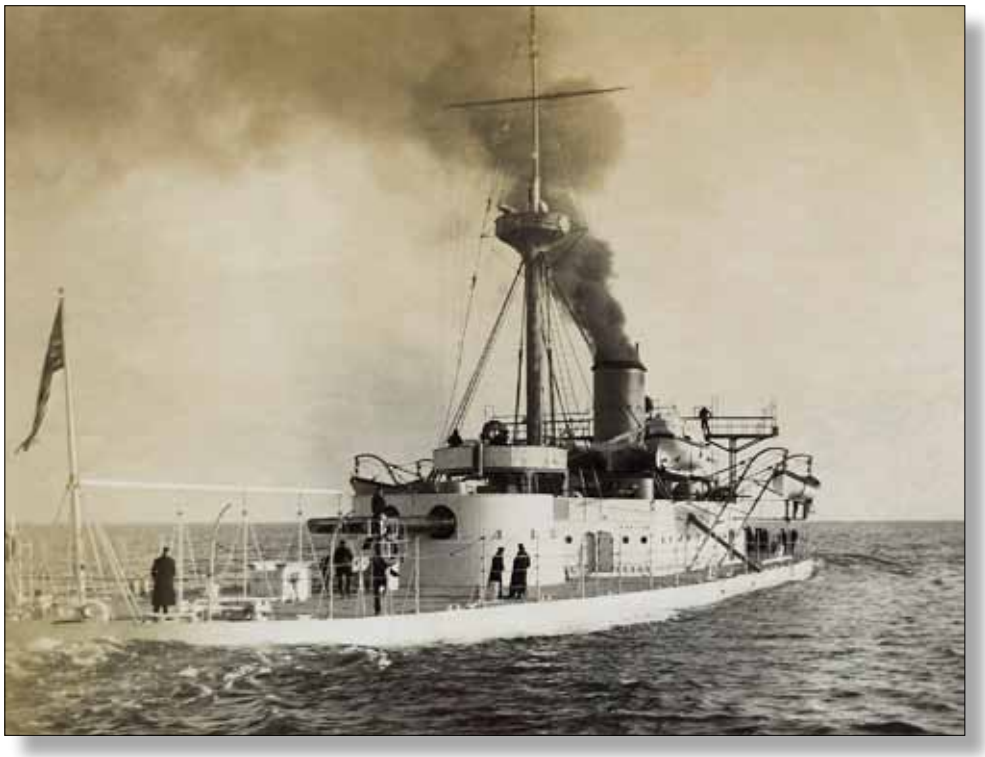
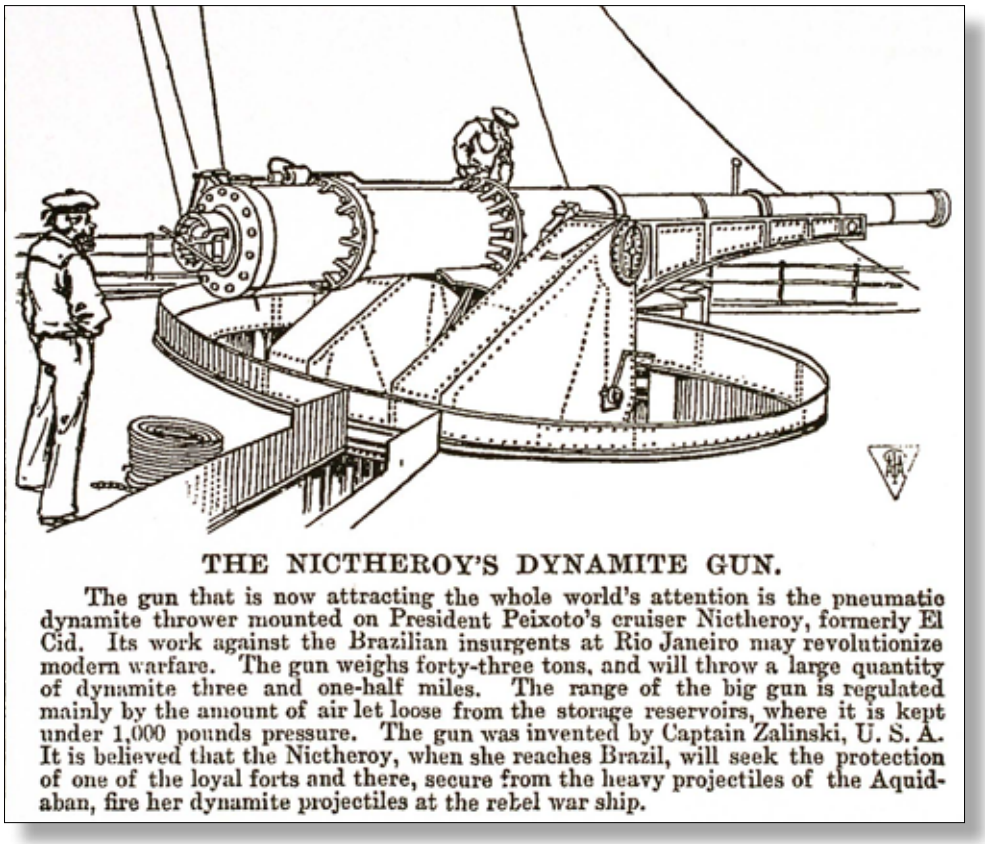
Continued from Page 21

After World War I, the torpedo shell concept was revived in the form of the aerial bomb by one charismatic Army officer, who claimed it could destroy any warship, provided it had enough capacity, air compression notwithstanding. These tests, like those of Willard Isham, had a connection with the Navy in Hampton Roads. The Army officer's claims about the efficacy of aerial bombing echoed those of the earlier torpedo shell inventors like Isham, Louis Gathmann, and Hudson Maxim. The Army officer was ridiculed based on the so-called failure of all three inventors. Aerial tests were conducted under conditions designed to promote failure, and later the officer was forced out of the service after America's most famous court-martial. His name: Brigadier General William "Billy" Mitchell.



USS Puritan, *seen here in her earlier days, was eventually freed from the muck of the Middle Ground and as "*Target B*" served in more live-fire tests involving high-capacity and armor-piercing shells. In 1921, her name was changed to*"IX-6" *and she briefly served as a radio-controlled target before finally being sold the following year. (Courtesy the Mariners' Museum, Newport News, Virginia)*



THE NICTHEROY'S DYNAMITE GUN.

The gun that is now attracting the whole world's attention is the pneumatic dynamite thrower mounted on President Peixoto's cruiser Nictheroy, formerly El Cid. Its work against the Brazilian insurgents at Rio Janeiro may revolutionize modern warfare. The gun weighs forty-three tons, and will throw a large quantity of dynamite three and one-half miles. The range of the big gun is regulated mainly by the amount of air let loose from the storage reservoirs, where it is kept under 1,000 pounds pressure. The gun was invented by Captain Zalinski, U. S. A. It is believed that the Nictheroy, when she reaches Brazil, will seek the protection of one of the loyal forts and there, secure from the heavy projectiles of the Aquidaban, fire her dynamite projectiles at the rebel war ship.

Despite the excitement over the installation of the untested dynamite gun aboard Nictheroy, *the insurgent fleet had surrendered by the time the cruiser arrived on the scene. (*Yenowine Illustrated News, *December 2, 1893)*

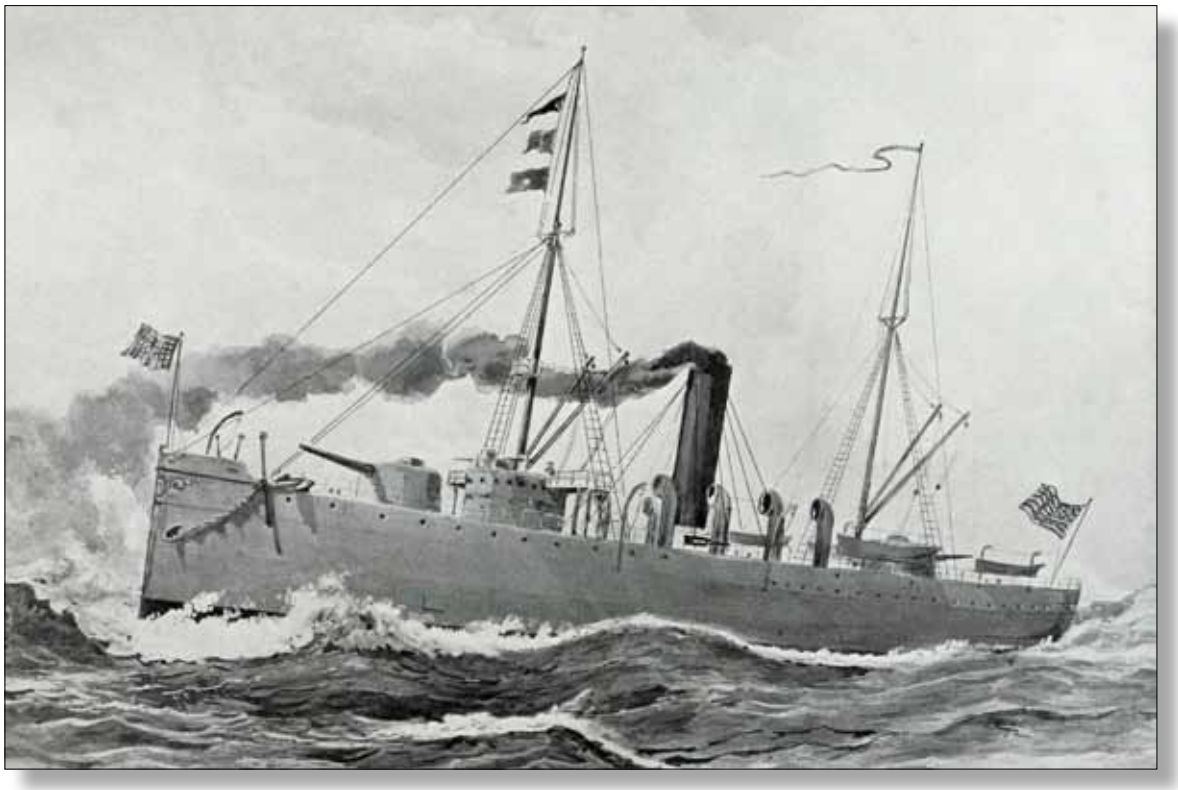
The Other Dynamite Cruiser
Continued from Page 7

oto's government during the autumn of 1893, she was taken up to the Morgan Iron Works in New York City in November for conversion to an auxiliary cruiser. Now renamed *Nictheroy*, after the Rio suburb bearing the brunt of the fighting, Edmund Zalinski personally supervised the installation of one of his 15-inch dynamite guns on a foredeck mount. He even volunteered to operate the gun in its first combat test but was not permitted leave by the Army.

In January 1894, Secretary Herbert ordered Rear Admiral Andrew E.K. Benham from his post in Hampton Roads commanding the North Atlantic Squadron, taking his flagship *San Francisco* to Guanbara Bay and assuming command of the other American warships already in place. Benham initially attempted to broker a peace between the parties, yet he was determined to insure the safe passage

of American shipping to Rio.

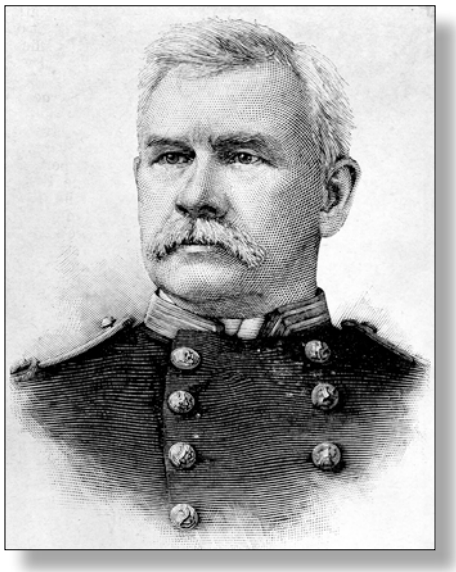
Taking an utterly different approach than Stanton, he informed Rear Adm. Saldanha on January 28 that he would not hesitate to use force in order to carry out his mission. The following day, shots rang out between the Norfolk-based unprotected cruiser USS *Detroit* (C-10) and the insurgent cruiser *Trajano* as she escorted an American merchant ship into the harbor. Again a diplomatic imbroglio ensued due to Benham's prevention of the insurgent fleet in establishing a blockade, lending de facto support to the Peixoto regime.



This artist's rendering of USS Buffalo *appeared in Collier's* The Story of the Spanish-American War *before she had actually joined the American fleet, so some liberties had been taken in depicting her appearance, most notably the addition of a large turret to house the dynamite gun on her foredeck. Whether the Brazilian navy had actually constructed such a housing is unclear, for the gun was removed before she was commissioned as an American warship. (HRNM Collection)*

This time Secretary Herbert came to Benham's defense, declaring that the unilateral action would "have a far-reaching and wholesome influence in quite a number of countries where revolutions are so frequent as to constantly imperil the rights of American citizens." "The insurgents at Rio Janeiro are said not to have recovered from the effects of the energetic action of the United States admiral," wrote one Associated Press correspondent, "which has done more to crush out the rebellion than all the previous actions of the Brazilian government since the opening of hostilities."

As happened in the wake of CSS *Florida's* seizure by USS *Wachusett* 30 years before, the nationalist sensitivities of many average Brazilians were aroused. A British consular communiqué reported that Benham had left "a very bad impression on shore," yet he had effectively broken the blockade, forcing the insurgent fleet to withdraw from the bay in March 1894. Meanwhile, *Nictheroy* had arrived



By breaking the rebel blockade of Rio de Janeiro on January 29, 1894, Rear Admiral (Upper Half) Andrew Ellicot Kennedy Benham ultimately broke the back of the rebellion. He retired from the Navy later that year. (NHHC Image)

to help put down the naval rebellion, but the American Navy had pretty much accomplished that goal already.

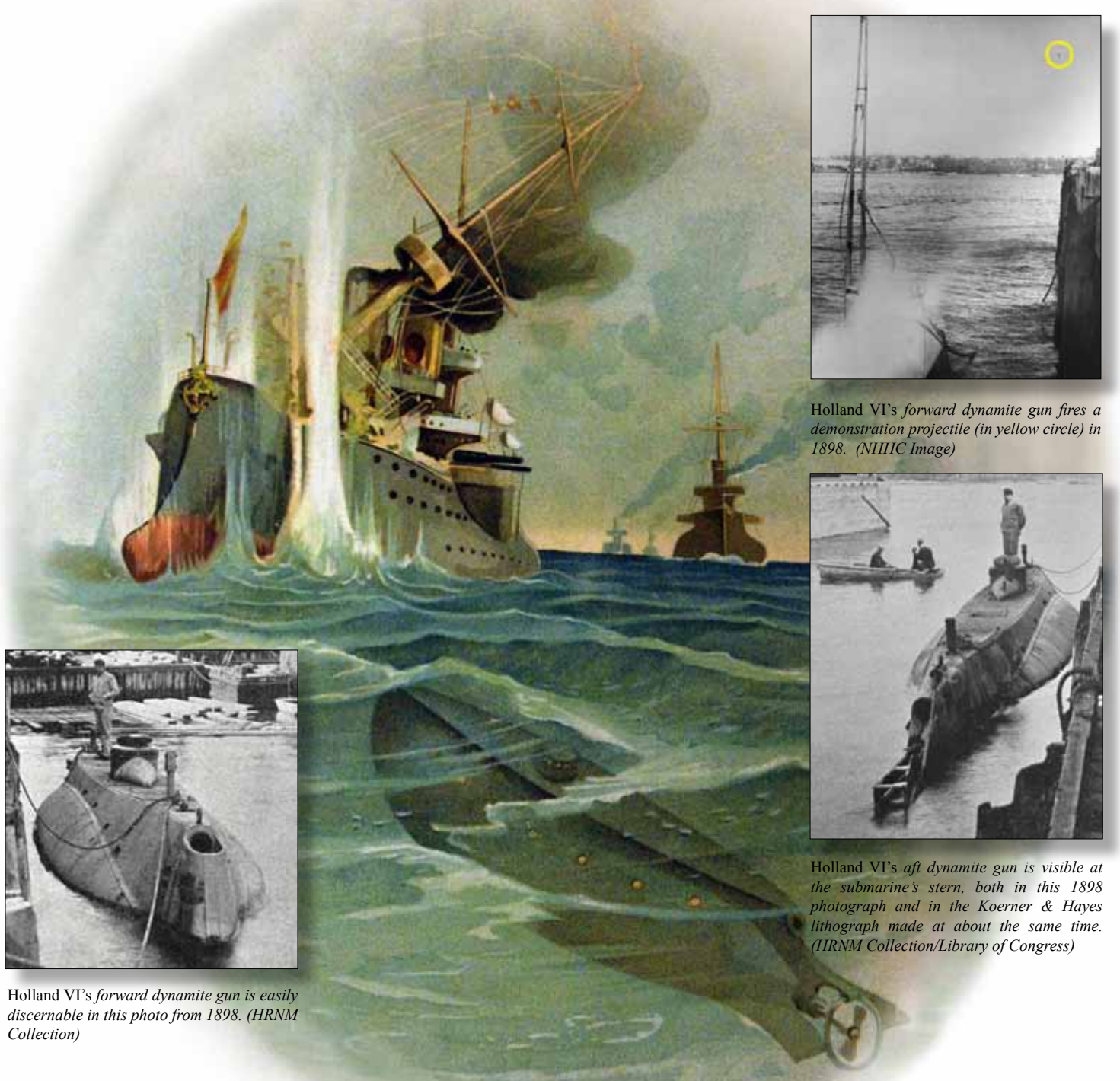
"(Rear Adm. da Gama's) sudden abandonment of his vessel when the *Nictheroy* came on the scene prevented the use of the dynamite gun and it is yet to make its debut as a weapon of destruction," wrote one disappointed correspondent.

A few years after the *Revoltas da Armada* wound down, a new conflict heated up north of the equator in the waters off Cuba and far across the Pacific. On July 11, 1898, the U.S. government purchased *Nictheroy* from the Brazilians, one of several obtained from the country during the Spanish-American War. She was commissioned USS *Buffalo* only a week later and sent to New York Navy Yard for fitting out. She was fully commissioned on September 22, 1898, and served the American Navy for nearly three decades, first as an auxiliary cruiser, later as a destroyer tender, and finally as a barracks ship.

Buffalo had the distinction of being, aside from USS *Vesuvius*, the only U.S. Navy surface vessel to be equipped with one of Zalinski's weapons, but soon after she was acquired, her dynamite gun was removed.

USS *Holland*: A Dynamite Submarine

A Partnership between Two Inventors Results in a Singular Navy Vessel



Holland VI's *forward dynamite gun fires a demonstration projectile (in yellow circle) in 1898. (NHHC Image)*

Holland VI's *aft dynamite gun is visible at the submarine's stern, both in this 1898 photograph and in the Koerner & Hayes lithograph made at about the same time. (HRNM Collection/Library of Congress)*

Holland VI's *forward dynamite gun is easily discernable in this photo from 1898. (HRNM Collection)*

This fanciful lithograph by Koerner & Hayes of the U.S. Navy's first submarine, seemingly more inspired by Jules Verne than her maker, John P. Holland, depicts a stealthy vessel capable not only of breaching an enemy warship's hull from below, but also wreaking havoc in the superstructure.

From the time Holland first attempted to interest the U.S. Navy in his submarine designs in 1874 to when he finally achieved success in 1900, he sought the support of various business partners, one of whom was Edmund Zalinski. Although their joint venture, the Nautilus Submarine Boat Company, was a failure, the *Holland VI*, equipped with forward and aft dynamite guns in addition to its single torpedo tube, was acquired by the U.S. Navy on April 11, 1900. By the time she was commissioned as USS *Holland* (SS-1) on October 12, however, the aft gun had been removed, yet *Holland* was still the last U.S. Navy vessel to be commissioned with a dynamite gun.