CONTRIBUTIONS TO NAVAL HISTORY NO. 13

# Case Studies in Damage Control

Foreword by
Master Chief Petty Officer of the Navy James M. Honea

Edited by Jon S. Middaugh and Tyler A. Pitrof

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# Damage Control

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Naval History and Heritage Command
Department of the Navy
Washington, DC
2025

*Published by*
Naval History and Heritage Command
805 Kidder Breese Street SE
Washington Navy Yard, DC 20374-5060
www.history.navy.mil
Cover design and interior layout by Jiyoung Han

Cover image: Crewmen aboard *Forrestal* (CVA-59) battle flames amid smoke and charred debris on the aft flight deck where a violent chain reaction of fires and explosions were set off by an initial blast as attack aircraft were being prepared to sortie. Aircraft on deck are the remains of an RA-5C Vigilante and F-4B Phantom. *Rupertus* (DD-851) is alongside assisting. Color enhancement by Jiyoung Han. (Naval History and Heritage Command, USN 1126644)

Use of ISBN:
This is the official U.S. Government edition of this publication and is herein identified to certify its authenticity. Use of ISBN 978-1-943604-40-1 is for this print edition only. The 508-compliant PDF is cataloged under ISBN 978-1-943604-41-8.

**Library of Congress Cataloging-in-Publication Data**

Names: Bamford, Tyler R. author | Fahey, John E. author | Middaugh Jon S. author | Nasuti, Guy J. author | Perinovic, Eric J. author | Pitrof, Tyler A. author | Talbott, Brooke C. author
Title: Case studies in damage control / by Tyler R. Bamford, John E. Fahey, Jon S. Middaugh, Guy J. Nasuti, Eric J. Perinovic, Tyler A. Pitrof, and Brooke C. Talbott.
Description: Washington, DC: Naval History and Heritage Command, Department of the Navy, 2025. | Includes bibliographical references. |
Summary: "This volume examines case studies of U.S. Navy damage control actions from 1937 to 2000, as well as two Royal Navy examples in 1982. Detailed within six chapters are a variety of instructive scenarios, including responses to ambush by aircraft, incessant waves of kamikaze strikes, horrific fires on aircraft carriers, missile attacks, mine strikes, and terrorist bombings. Collectively the accounts demonstrate just how far inspired leadership, intensive training, proper equipment, and personal courage can go toward saving a ship"-- Provided by publisher.
Identifiers: LCCN 2025946422 | ISBN 978-1-943604-40-1 paperback | ISBN 978-1-943604-41-8 adobe pdf

# Contents

# Foreword

Damage control is more than just a set of technical skills—it is a mindset that every Sailor must embrace. It represents the ability to stay calm, act decisively, and lead confidently in the face of potentially insurmountable challenges. In moments of crisis, your actions can mean the difference between saving the ship and losing it.

In the past 75 years, our Navy's damage control training and doctrine have only been tested in combat on a handful of occasions. Remarkably—and always due to the crew—not a single warship has been lost during these events. In each instance, we have studied what happened, learned from our mistakes, and worked to ensure that we are even better prepared for the future.

What separates good damage control from great damage control is mindset. A winning attitude is critical, especially when our shipmates become casualties and the situation feels overwhelming. We must commit ourselves fully to mastering all aspects of damage control. Your capacity to be confident in your damage control ability under pressure breeds confidence and trust in you and your team to do their jobs in an emergency.

In this volume, historians of the Naval History and Heritage Command capture our damage control efforts in action over the past century. It tells stories of Sailors who faced fear, chaos, and uncertainty and overcame them through skill, courage, and teamwork.

These accounts offer valuable insights into the unpredictable and dangerous nature of damage control in combat.

We cannot prepare for every possible contingency, but having intimate knowledge grants the ability to outthink, mitigate, and solve the problems before they happen, and act before situations arise or spiral out of control.

In the uncertain world of today, every Sailor should read and understand this human experience of damage control. Once at sea, we may be called upon at any moment to save our ship, because when the moment comes, the legacy of those who came before us demands that we rise to the challenge and win.

I encourage you to read the following stories. Learn from them. Consider how you will act in similar situations and commit yourself to being ready.

**James M. Honea**
16th Master Chief Petty Officer of the Navy

# Introduction

Jon S. Middaugh

Late in the morning of 8 May 1942, *Yorktown* (CV-5) sped to 30 knots and maneuvered aggressively to avoid a series of torpedoes and a cascade of bombs from Japanese aircraft. This skillful handling produced a serpentine wake and nearly enabled the ship to avoid any direct hit, but ultimately a 250-kilogram bomb hit 15 feet from the aircraft carrier's island and penetrated belowdecks. The strike and explosion killed or injured 66 sailors and ignited several fires. One of the severely wounded, Lieutenant Milton E. Ricketts, was rapidly losing strength but reflexively "opened the valve of a near-by fireplug, partially led out the firehose, and directed a heavy stream of fire before dropping dead beside the hose."[1] In helping to dampen the flames, Ricketts' response was but one of countless heroic and effective damage control efforts on the climactic last day of the Battle of the Coral Sea. Collectively, they enabled *Yorktown* to steam to Pearl

1. John B. Lundstrom, *Black Shoe Carrier Admiral: Frank Jack Fletcher at Coral Sea, Midway, and Guadalcanal* (Naval Institute Press, 2006), 187–93; Samuel Eliot Morison, *History of United States Naval Operations in World War II:* vol. 4, *Coral Sea, Midway and Submarine Actions, May 1942–August 1942* (Little, Brown, 1949), 53–57; "Milton Ernest Rickets," Congressional Medal of Honor Society, accessed 4 June 2025, https://www.cmohs.org/recipients/milton-e-ricketts. For his actions, Lieutenant Ricketts was posthumously awarded the Medal of Honor.

Harbor for emergency repairs that were completed just in time for the ship to fight in the Navy's seminal victory at the Battle of Midway in early June. By limiting the extent of damage to *Yorktown* on 8 May, the ship's crew contributed directly to turning the tide of the war in the Pacific Theater less than a month later.[2]

It was a century and a half prior to Midway, during the War of 1812, when "Don't give up the ship" emerged as an unofficial maxim for the Navy. However, the fundamental thinking and common procedures for *how* to save ships were not established until the decades between World War I and World War II. The evolution of damage control procedures was based not only on scientific principles and observed practice, but also upon a desire to learn and get better. In addition to enhancing its ships' inherent resistance to damage, the Navy began to emphasize the existential and operational advantages of keeping ships in the fight. Increasing numbers of officers and sailors took this message to heart and came to understand thoroughly the procedures required to combat flooding or fires, actions that, when leavened with inspired thinking and indomitable willpower, can often save a ship.

Damage control aims to keep a ship afloat and ready to fight, either in the current engagement or in a future one after the vessel has been sufficiently repaired. It encompasses several key precepts and actions. To avoid capsizing, ships and their crews must maintain sufficient watertight integrity, a status aided by regularly checking the hatches and fittings. Each crew must also strive to prevent fires from taking hold and be well-versed in firefighting should a blaze ignite. Widespread understanding of first aid is essential, for even if the catalyst of the initial damage does not produce casualties, fighting fires or controlling flooding are by themselves hazardous and demanding tasks, especially in combat. In summary, effective damage control requires well-organized and fully trained crews that

2. Lundstrom, *Black Shoe Carrier Admiral*, 216–301; Ronald H. Spector, *Eagle Against the Sun* (Vintage Books, 1985), 168–78. *Yorktown* itself would be sunk at the conclusion of the Battle of Midway, but the Imperial Japanese Navy's loss of four aircraft carriers enabled the United States to go on the offensive for the rest of the war.

thoroughly know their ship, their jobs, and how to communicate and respond in a dynamic, dangerous situation.[3]

Prior to World War I, the German navy took the lead in developing modern damage-control procedures.[4] Its ship designers incorporated more compartmentalization, often sacrificing habitability for the crew to improve their new ships' watertight integrity. Sailors trained relentlessly on damage control techniques, with much emphasis being placed on keeping as even a keel as possible to maintain a ship's ability to fire effectively. Institutionalization of the overall approach was furthered via the distribution of *Leckregeln* (damage control regulations), which provided standardized procedures and checklists to follow both prior to and during engagements.

The results of this focused approach soon became apparent to the German navy's major rival, the Royal Navy. "For three hours during which [the German armored cruiser *Blücher*] was the center of an overpowering concentration [of gunfire]," noted a British report on the Battle of Dogger Bank in early 1915, "she did not cease for a single moment to answer the fire."[5] In mid-1916, at the Battle of Jutland, which was the largest surface engagement of the war, German ships again continued to fight effectively while they absorbed tremendous punishment from enemy gunfire and torpedoes. They were then able to steam to friendly ports for repairs. By prioritizing the ability of their ships to remain in a fight and then survive to fight another day, the German navy had established a clear and convincing rationale for prioritizing damage control.[6]

Indeed, in the years immediately following the war, the U.S. Navy studied the German approach, and during the interwar period, it be-

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3. U.S. Navy, Damage Control School, Norfolk, "Damage Control Notes" (n.d.), 1–2; U.S. Naval Damage Control Training Center, Philadelphia, *Handbook of Damage Control* (U.S. Navy Bureau of Personnel, 1945), 1–9.

4. Thomas J. Kelly, *Damage Control: A Manual for Navy Personnel* (D. Van Nostrand, 1945), 1–2.

5. U.S. Navy, Bureau of Construction and Repair, *The Stability of Ships and Damage Control* (Government Printing Office [GPO], 1931), 1–8.

6. E. B. Potter and Chester W. Nimitz, *Sea Power: A Naval History* (Prentice-Hall, 1960), 432–54; V. E. Tarrant, *Jutland, The German Perspective: A New View of the Great Battle, 31 May 1916* (Naval Institute Press, 1995), 78–249.

gan to adopt most of the same methods. "The success . . . with which the Germans maintained damaged vessels in action and brought them into port excited the interests of all persons concerned with the handling of ships," stated a report by the Bureau of Construction and Repair. Translated copies of *Leckregeln* were distributed throughout the fleet in the early 1920s. Navy ship designs, meanwhile, began incorporating more compartmentalization to enhance watertight integrity, although American sailors typically had more habitable spaces than their German counterparts. Damage control organizations aboard ships were prescribed, and improved communication systems enabled better command and control during training and in actual practice.[7]

In 1930, a future chief of naval operations summarized the ways in which "interest in damage control has increased noticeably" during the 1920s. Noting that "the first requisite of a fighting ship is that it remain afloat," Lieutenant Commander Robert B. Carney observed that the "appreciation of this axiom has gradually led to a better understanding of the necessity for the organization and equipment with which all phases of damage may be met and neutralized."[8] He also presciently forewarned that great attention must be given to what was a relatively new type of ship, the aircraft carrier. "Special precautions are taken in the hangar and on the flight deck and a fire-integrity watch is maintained owing to the tremendous fire hazard on ships of this class and the dire consequences possibly resulting from fire in the vicinity of the great amount of inflammable material on board."[9] The institutional focus and push for improvement continued, and in 1936, an article in *Proceedings* argued that the growing specialization within the field indicated the need to create a damage controlman rating.[10] Although a dozen years would pass before a specialized rating ultimately was established,

7. U.S. Navy, *Stability of Ships*, 107–10.

8. Robert B. Carney, "Damage Control," *Proceedings* 56, no. 7 (1930): 623–25. Admiral Carney served as the Chief of Naval Operations from 1953 to 1954.

9. Carney, "Damage Control," 623–25.

10. Edward J. Fahy, "Lo! The 'Poor Janitor' Thinks," *Proceedings* 62, no. 1 (1936): 31–32.

the Navy's overarching emphasis on damage control nevertheless had come just in time.

The onset of World War II provided the Navy with a worldwide laboratory in which to test and refine its own understanding of the tenets of damage control. When the Japanese attack at Pearl Harbor on 7 December 1941 caught the Navy and nation off guard, officers and sailors instinctively applied damage control procedures, such as counter-flooding, to good effect, and many sailors demonstrated great courage while saving their shipmates.[11] As the war progressed, with greater numbers of ships and sailors steadily entering the fleet and new technologies constantly emerging, the Navy regularly reviewed its procedures for saving ships to meet new threats such as kamikaze attacks.

In the early postwar years, jet aircraft, missiles, and nuclear weapons were entering the calculus and forcing more change. The critical role played by effective damage control during the war finally prompted the Navy to establish a rate for damage controlman in 1948.[12] Ever since, the Navy has regularly updated the associated training manuals to account for new developments in ship design, enemy threats, communications capabilities, safety equipment, and crew composition.[13] The need to stay current continues to this day.

As a complement to doctrine, this volume uses case studies to suggest insights that may be taken both from successful and prob-

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11. Homer N. Wallin, *Pearl Harbor: Why, How, Fleet Salvage and Final Appraisal* (Naval History Division, 1968), 127–28, 148–49, 157–58, and 168–69. Badly damaged by numerous torpedo strikes, *West Virginia* (BB-48) was effectively counterflooded so that it maintained an even keel while coming to rest upon soft mud. After undergoing salvage operations and extensive modernization, the battleship returned to see action in 1944.

12. Charles A. Mann, "Compilation of Enlisted Ratings and Apprenticeships, U.S. Navy, 1775 to 1969" (Permanent Board for Review of the Enlisted Rating Structure, Bureau of Naval Personnel, December 1969), https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/c/enlisted-ratings-in-u-s-navy-1775-1969.html. The new damage controlman rating drew from multiple affiliated ratings: specialist (F), fire fighter; carpenter's mate; carpenter's mate (SR), joiner; carpenter's mate (SR), builder; and painter.

13. U.S. Navy Bureau of Personnel, *Damage Controlman 1 and Chief Damage Controlman* (GPO, 1949); U.S. Naval Education and Training Program Development Center, *Damage Controlman 3 & 2* (GPO, 1986).

lematic damage-control responses that occurred from the eve of World War II through the dawn of the twenty-first century. Most demonstrate the importance of flexible thought, resilience, and problem-solving as key complements to the bedrock of having prepared and well-trained crews. In a few instances, however, these cases also note how under preparedness, panic, or weariness were handmaidens for disaster. All are instructive.

In the lead essay by Tyler R. Bamford, resourceful thinking and timely first aid actions make the difference for the crew of *Panay* (PR-5), a river gunboat with practically no inherent structural resistance to the unexpected aerial attack it faced while on the Yangtze River four years prior to Pearl Harbor. Next, Guy J. Nasuti details how decisive leadership, ingenuity, and heroism enabled multiple crews to keep their ships afloat and fighting as they resisted an onslaught of kamikaze attacks in the final year of World War II. These culminating efforts in the war collectively constituted perhaps the most extensive and intensive test of damage control the Navy has faced in its history, and they thus provide valuable observations about the subject.

In the decades that followed, new as well as long-standing threats tested damage control teams in a variety of ways. Eric J. Perinovic's account of the outbreak and responses to the horrific fires on the carriers *Oriskany* (CVA-34) and *Forrestal* (CVA-59) during the Vietnam War shows that having inadequately-trained or equipped crews handling munitions amid intensive jet strike operations created a nearly overwhelming hazard. In the 1980s, the proliferation of French-made, sea-skimming Exocet anti-ship missiles created a formidable new threat. The great difficulties that dense smoke from Exocet strikes produced for crews of the Royal Navy as well as U.S. Navy vessels therefore are detailed in Tyler A. Pitrof's chapter. In the same period, the much older, but similarly lethal threat of sea mines was also present; however, John E. Fahey details how a well-trained and determined crew accomplished the near impossible in keeping *Samuel B. Roberts* (FFG-58) afloat after it struck a mine. Finally, Brooke C. Talbott's account of *Cole* (DDG-67) demonstrates once again that a crew hard tested in training can rise to meet the

challenge of the unexpected, in this case, a small boat filled with explosives operated by two al-Qaeda terrorists.

Although the perils described in the chapters above resulted directly from enemy actions or from operating in combat, extremely dangerous hazards can also emerge suddenly for ships that are in ostensibly less threatening settings. The destructive fires that broke out on *George Washington* (CVN-73) while in transit off Central America in 2008 and on *Bonhomme Richard* (LHD-6) while pierside for repairs in 2020 were but two of "15 shipboard major fire related events over a 12-year period," according to an official review completed by the U.S. Fleet Forces Command and U.S. Pacific Command in 2021. The underlying objective for this report's "deep dive [into] the historical record" was to "understand and address systemic issues underlying the persistence of shipboard fire mishaps and to recommend actions" to correct these problems.[14] An appreciation of pertinent historical case studies can similarly lead to improvement.

The Navy's willingness to learn from others and from its own experiences has paid dividends in the past, and it will be essential for competing effectively in the future. By purposefully considering instances of inspired or, at times, problematic cases of damage control, sailors will become better prepared to preserve their ship and shipmates should they face a calamitous situation in combat or in peacetime. Deriving insights and inspiration serves to promote quick but steady thinking, meaningful action, and resiliency when they are needed most. Therefore, with hopes for spurring insights and inspiration, the following essays examine noteworthy examples of damage control to highlight key elements for saving ships.

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14. Commander, U.S. Fleet Forces Command, and Commander, U.S. Pacific Forces, *Major Fires Review Executive Summary* (U.S. Department of the Navy, 15 June 2021), 1. This review originally was identified as Controlled Unclassified Information (CUI) but subsequently was released to the public.

# "They Never Gave Me a Chance": The Loss of USS *Panay* (PR-5)

Tyler R. Bamford

On Sunday afternoon, 12 December 1937, the U.S. Navy gunboat *Panay* (PR-5) swung leisurely at anchor 28 miles southwest of the ancient Chinese capital of Nanking in the middle of the broad Yangtze River.[1] Although an undeclared war between Japanese and Chinese forces raged in the distant countryside, the sailors and refugees aboard *Panay* were at ease. They relaxed confidently in the protection afforded by U.S. neutrality and the 18-by-14-foot American flags freshly repainted atop the ship's awnings over the forward and after top deck.[2] The sailor standing watch on *Panay*'s bridge scanned the skies and riverbanks, alert to possible movements beyond the three American merchant vessels that anchored close by seeking the

1. H. V. McKittrick et al., "Finding of Facts of the Court of Inquiry Ordered to Investigate the Bombing and Sinking of the USS *Panay*," 23 December 1937, Z Files, ZC Panay, Navy Department Library (NDL), Naval History and Heritage Command (NHHC), Washington Navy Yard.

2. Commanding Officer (CO), USS *Panay* to Secretary of the Navy (SECNAV), "USS *Panay*, The Loss of By Sinking as a Result of Bombing by Japanese Planes, 12 December 1937," Z Files, ZC *Panay*, NDL, NHHC.

gunboat's protection.[3] The day was sunny and calm, and visibility was good. American embassy personnel, who had sought refuge aboard the gunboat, assiduously radioed the vessel's position to the U.S. consulate in Shanghai, along with an explicit request to relay this information to the Japanese embassy as an added precaution.[4] Having employed all available means to advertise *Panay*'s identity as a neutral vessel and anchor in a safe area, the ship's captain, Lieutenant Commander James J. Hughes, permitted nearly the entire crew to stand down following several weeks in a prolonged state of readiness due to nearby hostilities and indirect fire.

*Panay*'s sailors were experienced and highly motivated, yet they were wholly unprepared for the furious aerial onslaught about to target their ship. The unarmored gunboat was never meant to withstand hits from heavy ordnance, nor did it carry weapons capable of defending against modern military aircraft. Despite these vulnerabilities, the crew responded with courage and resilience when 24 Japanese aircraft bombed and strafed *Panay* for more than 20 minutes. With little direction from their wounded officers, the sailors manned their weapons, attempted to mitigate the damage inflicted, and conducted a disciplined evacuation while under accurate machine gun fire. By remaining calm and focused on addressing the immediate problems of security and survival, the sailors aboard *Panay* acted in unison to protect one another and assist those wounded in the attack. The sailors' composure and efficiency during the assault ensured that everyone escaped the sinking ship and was prepared for the struggle ashore. Surrounded by potentially hostile forces, the crew received assistance from a friendly local populace in an unfamiliar environment. When the exhausted group finally rendezvoused with rescue vessels two days later, one sailor and an Italian refugee aboard

3. McKittrick et al., "Finding of Facts."

4. McKittrick et al., "Finding of Facts"; "The Ambassador in China (Johnson) to the Secretary of State," 124.93/401: Telegram, *Foreign Relations of the United States Diplomatic Papers, 1937*, ed. Matilda F. Axton et al., vol. 4, *The Far East* (Government Printing Office [GPO], 1954), Document 618, https://history.state.gov/historicaldocuments/frus1937v04/d618.

*Panay* had died.[5] The following week, a second sailor succumbed to his wounds.[6] Yet the valiant fight of *Panay*'s crew against the first air attack to sink a U.S. Navy ship inspired the nation.[7]

## Background

U.S. Navy warships had first navigated China's Yangtze River as far as Wuhu in 1854, and by 1900, American gunboats maintained an almost continuous presence on the river to protect the lives and property of American citizens in China.[8] Following the victories of Great Britain and other western powers over China in the Opium Wars, foreign powers forced China to grant them the right to station warships on its inland waterways.[9] As thousands of American missionaries fanned out across the interior of the country in the late nineteenth century, there was substantial political support in the United States for protecting the evangelists and the much smaller numbers of American merchants.[10] By 1924, the U.S. Navy's formally constituted Yangtze Patrol consisted of four gunboats, two former minesweepers, and a yacht that served as the patrol commander's flagship.[11] That same year, Congress authorized the construction of

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5. Manny T. Koginos, *The* Panay *Incident: Prelude to War* (Purdue University Studies, 1967), 30.

6. H. V. McKittrick et al., "Finding of Facts."

7. Hamilton Darby Perry, *The* Panay *Incident: Prelude to Pearl Harbor* (Macmillan, 1969), 113.

8. Robert E. Johnson, *Far China Station: The U.S. Navy in Asian Waters, 1800–1898* (Naval Institute Press, 1979), 109; Bernard D. Cole, "America's Asiatic Fleet," *Naval History Magazine*, October 2011, 21.

9. Bernard D. Cole, *Gunboats and Marines: The United States Navy in China, 1925–1928* (University of Delaware Press, 1983), 24.

10. Kwang-Ching Liu, ed., *American Missionaries in China: Papers from Harvard Seminars* (Harvard University Press, 1966), 1; Cole, *Gunboats and Marines*, 225. By the 1930s more than 3,000 American missionaries were evangelizing in China. President Calvin Coolidge personally urged Congress to appropriate funds for gunboat construction for the Yangtze Patrol in early 1925.

11. Wallace S. Wharton, "Our Chinese Navy," *Proceedings* 51, no. 1 (1925): 70–72; Felix L. Johnson and Harry A. Baldridge, "Naval Activities on the Yangtse," *Proceedings* 53, no. 4 (1927): 506.

six new river gunboats, including *Panay*, to replace the motley and aged vessels serving on the river.[12]

Built by the Kiangnan Dock Company of Shanghai, *Panay* resembled nothing so much as a two-story houseboat when commissioned on 10 September 1928. The 191-foot-long gunboat had a standard complement of 59 sailors and officers and could make better than 15 knots at top speed with its two triple expansion steam engines. The vessel was mainly intended to conduct routine visits to towns and cities along the river and evacuate American citizens when bands of thieves or the forces of local warlords threatened their safety. *Panay* was lightly armed with just eight .30-caliber Lewis machine guns mounted amidships and two three-inch guns, one mounted forward and another aft.[13] The ship possessed hinged steel plates that could be closed to shield the pilothouse and other windows from small arms fire, but otherwise had little in the way of armor protection.

The gunboat *Panay* (PR–5) off Woosung, China, conducting standardization trials on 30 August 1928. (National Archives and Records Administration [NARA], 404792257)

12. Norman Friedman, *U.S. Small Combatants: An Illustrated Design History* (Naval Institute Press, 1987), 421.

13. Ken W. Sayers, *U.S. Navy Patrol Vessels: A History and Directory from World War I to Today* (MacFarland, 2021), 284–85.

After Japanese forces launched a full-scale invasion of China following the 7 July 1937 Marco Polo Bridge incident, *Panay* continued patrolling the Yangtze River. The United States proclaimed its neutrality in the undeclared war, and *Panay*'s commander took precautions to avoid misidentification, such as ordering large U.S. flags painted on the ship's awnings and flying the ship's "largest ensign at the gaff both night and day, whether underway or at anchor."[14] In addition to these proactive measures, Lieutenant Commander Hughes ensured that his crew was prepared for the possibility of an air attack. Whenever there was an air raid alarm, "we closed all watertight doors and hatches and the word passed to close the ship," attested the ship's executive officer, Lieutenant Arthur F. Anders.[15] Though Hughes did not expect the gunboat to be attacked due to its distinctive profile, white and buff paint scheme, and prominently displayed nationality, it seemed increasingly likely that errant bombs or artillery shells might strike *Panay*.[16]

As Japanese forces advanced on Nanking in the first week of December 1937, *Panay* remained docked on the city's waterfront to provide an emergency evacuation for the few Americans left in the city.[17] Japanese aircraft repeatedly bombed the riverside districts, with Japanese artillery fire falling disconcertingly close to *Panay*'s berth, prompting Hughes to shift the gunboat one and a half miles upriver on 9 December.[18] Two days later, *Panay* took aboard the four remaining members of the embassy staff, a secretary of the Italian embassy, an American businessman, and 10 American, British, and Italian news reporters. Hughes then radioed Shanghai that he was

14. CO to SECNAV, "USS *Panay*."

15. Commander in Chief, Asiatic Fleet (CINCAF) to SECNAV, "Statements in Connection with the Bombing and Loss of the U.S.S. *Panay*, Forwarding of for File," 20 June 1938, Z Files, ZC *Panay*, NDL, NHHC.

16. McKittrick et al., "Finding of Facts."

17. Koginos, Panay *Incident*, 24.

18. CINCAF to SECNAV, "Statements."

moving his vessel 12 miles upriver from Nanking and requested that Japanese forces be notified through the Japanese embassy.[19]

The next morning, Japanese artillery again imperiled *Panay* and compelled Hughes to get underway.[20] Steaming slowly upriver, *Panay* acquired a convoy of three tankers that belonged to the Standard Oil Company of New York and were similarly emblazoned with multiple large American flags.[21] Around 0940, a Japanese motorboat loaded with as many as 30 soldiers ordered *Panay* to halt.[22] A Japanese lieutenant and armed guards boarded the gunboat, without asking permission, and demanded in broken English to speak to the captain. Overlooking the impropriety of the lieutenant's guards, Hughes duly answered the officer's questions about *Panay*'s nationality and destination, a point that he explained was 28 miles upriver from Nanking. Hughes informed the officer that *Panay* was an American warship protecting three U.S. merchant vessels.[23] During the encounter, Hughes maintained his composure despite what U.S. Army assistant military attaché Captain Frank N. Roberts called the "insolent conduct" of the Japanese soldiers.[24]

Once the uninvited Japanese boarding party departed, *Panay* resumed its journey until it finally anchored with its convoy at the intended point at about 1100.[25] At that spot the river ran almost north

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19. Norman Alley, *I Witness* (Wilfred Funk, 1941), 254; J. M. Sheehan, "List of Survivors of the Bombing of the U.S.S. *Panay* and Her Convoy on 12 December, 1937," Z Files, ZC *Panay*, NDL, NHHC; "The Ambassador in China (Johnson) to the Secretary of State," 793.94/11583: Telegram, *Foreign Relations of the United States Diplomatic Papers, 1937*, ed. Matilda F. Axton et al., vol. 4, *The Far East* (GPO, 1954), Document 616, https://history.state.gov/historicaldocuments/frus1937v04/d616.

20. "The Commander of the United States Yangtze Patrol (Marquart) to the Chief of Naval Operations (Leahy)," 394.115 Panay/1: Telegram, *Foreign Relations of the United States Diplomatic Papers, 1937*, ed. Matilda F. Axton et al., vol. 4, *The Far East* (GPO, 1954), Document 619, https://history.state.gov/historicaldocuments/frus1937v04/d619.

21. CINCAF to SECNAV, "Statements."

22. McKittrick et al., "Finding of Facts"; "Panay Stopped by Japanese Troops Before Bombing," *Imperial Valley Press*, 19 December 1937.

23. CO to SECNAV, "USS *Panay*."

24. CINCAF to SECNAV, "Statements."

25. McKittrick et al., "Finding of Facts."

and south. The east bank rose to a series of low hills, while the west bank presented large patches of marshland covered in tall reeds. Aside from these reeds, neither bank of the river offered significant foliage, and *Panay*'s lookouts had excellent visibility ashore. Detecting no threats, Lieutenant Commander Hughes permitted the crew to rest.[26] Eight of the sailors took a launch to the nearby tanker *Mei Ping* to enjoy some beers.[27] *Panay*'s guns were covered, and only one of the gunboat's two boilers remained lit.[28]

## Attack

Hughes was not alarmed when the lookout on the bridge called down to him around 1327 to report two aircraft approaching at high altitude. Japanese warplanes had been a frequent sight when the ship was docked in Nanking in the previous weeks, and now that *Panay* was not surrounded by Chinese vessels, the threat of misidentification seemed much less. As Hughes raised a pair of binoculars and focused on the clearly identifiable Japanese aircraft, 24 in all, several of the aircraft pushed over into a dive toward *Panay*. Hughes had no time to sound the alarm or warn his crew, because the moment he stepped back inside the bridge, a 60-kilogram bomb from a high-altitude bomber penetrated the bow of the thin-skinned gunboat and exploded in a forward compartment, blowing the captain off his feet.[29]

While the first bomb pierced the bow just forward of the bridge and detonated, several others bracketed the ship simultaneously. The blast from the direct hit wrecked the forward three-inch gun, brought down the foremast, and disabled the radio equipment.[30] The force of the explosion threw the captain against the engine-room

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26. Perry, Panay *Incident*, 63.

27. CO to SECNAV, "USS *Panay*."

28. Koginos, Panay *Incident*, 27; CINCAF to SECNAV, "Statements."

29. CO to SECNAV, "USS *Panay*"; Masatake Okumiya, "How the *Panay* Was Sunk," *Proceedings* 79, no. 6 (1953): 589.

30. CO to SECNAV, "USS *Panay*"; Perry, Panay *Incident*, 95; CINCAF to SECNAV, "Statements."

telegraph, fracturing his hip and knocking him unconscious. Even more critically, this bomb severed the main fuel line and punched a seven-inch hole in the ship's bottom when it exploded. The force of the explosion also cracked the ship's side plating from the deck to the hole in the hull.[31] The ship's medical officer, Lieutenant Clark G. Grazier, felt "a series of terrific concussions which rocked and shook the ship from stem to stern."[32] Lieutenant Commander Hughes, unable to stand when he regained consciousness, ordered Chief Quartermaster John H. Lang, himself wounded by shell fragments, to assist him down to the ship's galley on the main deck. As the pair painfully made their way to the galley, Hughes heard his crew manning the ship's guns.[33]

## Fighting Back

After sailors recovered from the impact of the first blast, they rushed to their battle stations. *Panay*'s air raid bill called for the ship's eight Lewis machine guns to be manned in the event of an air attack. Although *Panay*'s three-inch guns could also elevate to engage aircraft, accessing their ammunition required opening the hatches leading to the magazine and the magazine doors. In the event of an aerial assault, the ship's watertight integrity was judged more important than utilizing these two slow-firing guns, so their crews now assisted with loading and firing the machine guns.[34]

The four .30-caliber machine guns on each side of the ship were slightly recessed and mounted behind rotating shields that afforded the gunners a small measure of protection from shrapnel and bullets. Sailors raced to cut the canvas covers off the guns and load circular pans of ammunition on top of the weapons.[35] Once loaded, however,

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31. McKittrick et al., "Finding of Facts"; Buell F. Brandt, "Rough Log of the Salvage Operations in Connection with the U.S.S. *Panay*," 9 January 1938, Collection of Buell F. Brandt, USN, 1937–1940, folder 2, NDL, NHHC.

32. CINCAF to SECNAV, "Statements."

33. CO to SECNAV, "USS *Panay*."

34. CINCAF to SECNAV, "Statements"; McKittrick et al., "Finding of Facts."

35. Perry, Panay *Incident*, 83.

the guns could not bear directly forward, limiting their effectiveness.[36] As Japanese aircraft pressed nearly all of their low-level attacks on *Panay* from directly ahead, the gunners had to wait until the aircraft banked away and presented a brief target as they pulled out of their bombing runs.[37] Despite the proximity of the falling bombs, sailors unflinchingly manned the weapons as they had done in countless drills. Chief Boatswain's Mate Ernest Mahlmann was getting dressed in the forward boatswain's locker when the first bomb hit, and he rushed to man a gun without even putting his pants on. Filmed by one of the civilian cameramen on board, Mahlmann was later celebrated as "The Pantless Gunner of *Panay*" in a widely

*Panay* sailors firing at attacking Japanese aircraft on 12 December 1937. Gunner on the right is Chief Boatswain's Mate Ernest R. Mahlmann, who went to his battle station without pants. (Naval History and Heritage Command [NHHC], NH 50815)

36. C. Douglas Sterner, *United States Navy Heroes,* Vol. 2, Navy Cross, 1915–WWII (CreateSpace Independent Publishing Platform, 2015), 293.

37. Perry, Panay *Incident*, 83.

circulated poem, and his image appeared prominently in *The Evening Star* newspaper.[38] Mahlmann and the other sailors were eager to strike back against their assailants, whom they now plainly identified as Japanese by the red discs on their wings as the aircraft strafed the ship at low altitude.

The steady machine gun fire from *Panay* did little to deter the attackers, and Japanese pilots straddled the ship with approximately 20 bombs. Machine gun bullets and shrapnel from the explosions pockmarked the gunboat and struck nearly 50 men. Machinist's Mate Second Class Karl Johnson was rushing ammunition to the guns when a piece of shrapnel struck him in the shoulder.[39] Coxswain Edgar W. G. Hulsebus was mortally wounded by a bullet in the back while firing one of the guns. "They never gave me a chance," Hulsebus cried, as he collapsed to the deck. Lieutenant Anders, who was struck by shrapnel in the throat, nevertheless manned a machine gun until shrapnel also tore into his hands as he was reloading the weapon.[40]

Aboard larger warships, the Navy's damage control protocols at the time called for the first lieutenant or executive officer to act as the damage control officer and to coordinate repair efforts from a central station using a casualty repair battle telephone circuit.[41] Accordingly, Anders took active charge of the ship from the bridge upon learning that Lieutenant Commander Hughes was incapacitated, despite being unable to speak and bleeding profusely from his neck and hands.[42] Anders' inability to verbalize his orders compounded the ship's loss of telephone communications. Instead, Anders wrote out

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38. Vaun Al Arnold, "The Pantless Gunner of Panay," *Bureau of Navigation Bulletin*, 5 March 1938, 2; Vaun Al Arnold, "The Pantless Gunner of the Panay," *Hardin Tribune-Herald*, 8 April 1938; Noman Alley, "Bombs Shake Panay as Gunners Fire at Attacking Planes," *Evening Star* (Washington, DC), 30 December 1937.

39. Perry, Panay *Incident*, 89.

40. Norman Soong, "Writer Tells of Machine Gunning by Japanese Planes and Launch," *New York Times*, 18 December 1937.

41. U.S. Navy, Department Bureau of Navigation, *Interior Control Manual for Use of the Naval Reserve* (GPO, 1930), 18.

42. CO to SECNAV, "USS *Panay*"; CINCAF to SECNAV, "Statements."

his orders on the white paintwork of the ship and inquired whether the ship could get underway to be beached.[43]

Although Chief Water Tender Emery F. Fisher quickly shut off the ship's broken main oil line, the leak meant that neither of the ship's boilers could be brought online, and therefore, all power was lost throughout *Panay*. Unable to get the ship underway, the crew on watch in the fireroom released the remaining steam in the one ready boiler and secured it to prevent an explosion in the event it was hit by a bomb.[44] A sailor in the engineering department informed Lieutenant Anders that the ship had no propulsion, and the upper-level catwalk in the now defunct fireroom became a makeshift sick bay for the wounded.[45] The fireroom's heavy equipment and lockers offered more protection than the ship's exposed sick bay on the upper deck, where the "steel walls were gashed with hundreds of rents where the plates had been ripped like paper."[46]

On the lower deck, *Panay*'s engineers quickly realized the hopelessness of the ship's situation. All six of the ship's portable gasoline-powered water pumps had been disabled by bombs.[47] Anders explained that the gunboat "was divided into small watertight compartments by horizontal bulkheads," but the weight of the water filling the destroyed forward compartment soon gave the ship a slight list to starboard.[48] The executive officer ordered all watertight hatches closed, but *Panay*'s shallow draft meant that "there were no watertight doors or hatches below the water line except manhole plates which were habitually kept closed."[49] As the ship's engineering officer, Lieutenant (j.g.) John W. Geist, later attested, there was nothing that could have been done to increase the watertightness of

43. CINCAF to SECNAV, "Statements"; Perry, Panay *Incident*, 105.

44. CINCAF to SECNAV, "Statements."

45. CINCAF to SECNAV, "Statements."

46. CINCAF to SECNAV, "Statements"; Perry, Panay *Incident*, 93.

47. CINCAF to SECNAV, "Statements."

48. CINCAF to SECNAV, "Statements"; CO to SECNAV, "USS *Panay*."

49. CINCAF to SECNAV, "Statements."

the ship, as every hatch had been secured.[50] The river began pouring through smaller shrapnel holes throughout the ship, and in less than 20 minutes, there was about a foot of water in the firerooms, according to Chief Water Tender Fisher.[51]

## Abandon Ship

Twenty minutes after the attack began, Lieutenant Commander Hughes judged the ship to be rapidly "settling down by the head to starboard." Ensign Denis H. Biwerse reported to Hughes that the ship was sinking and the portable pumps were out of action. Assessing *Panay*'s damage, Biwerse then asked whether he "should throw overboard the confidential publications."[52] Hughes ordered him to do so, and Biwerse dutifully disposed of the ship's sensitive documents and cylindrical ciphers.[53] Though not in communication with one another, both Hughes and Anders concluded almost simultaneously that the crew must begin the time-consuming process of abandoning *Panay*.[54] Incredibly, the gunboat's two motor sampans had escaped serious damage, and Hughes ordered the wounded taken off first.[55] The captain instructed Biwerse to remain aboard with six uninjured men to do what they could to save the ship if the air attack ceased.[56] Though Ensign Biwerse was the only remaining uninjured line officer, he was suffering from shock after the first bomb struck close enough to where he was standing to blow off most of his uniform.[57]

Upon receiving the order to abandon ship, *Panay*'s crew calmly donned their life jackets. Several sailors gave up their own life jackets to the civilians aboard and elected to swim to shore to lighten

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50. CINCAF to SECNAV, "Statements."

51. CINCAF to SECNAV, "Statements."

52. CO to SECNAV, "USS *Panay*"; McKittrick et al., "Finding of Facts."

53. CINCAF to SECNAV, "Statements."

54. CINCAF to SECNAV, "Statements"; McKittrick et al., "Finding of Facts."

55. CO to SECNAV, "USS *Panay*."

56. CO to SECNAV, "USS *Panay*."

57. CINCAF to SECNAV, "Statements"; McKittrick et al., "Finding of Facts"; CO to SECNAV, "USS *Panay*."

the load on the boats.[58] To a man, the crew understood that the loss of their ship did not relieve them of their duty to the Navy or one another. Their biggest damage control challenge now became the struggle to protect one another. Before leaving *Panay*, many sailors presciently salvaged supplies, rations, and money. Lieutenant Grazier scrounged through the wreckage of the sick bay to retrieve bandages, antiseptics, and the crew's medical records in preparation to treat the many wounded men once ashore.[59] Both Hughes and Anders were reluctant to abandon *Panay* before the rest of the crew, but Hughes' serious injuries warranted his evacuation among the first trips to shore.[60] Anders could barely stand from loss of blood, yet he remained aboard until the second-to-last boat left the ship.[61]

*Panay* crewmembers abandoning ship between Nanking and Wuhu, China, on 12 December 1937. (NHHC, NH 50836)

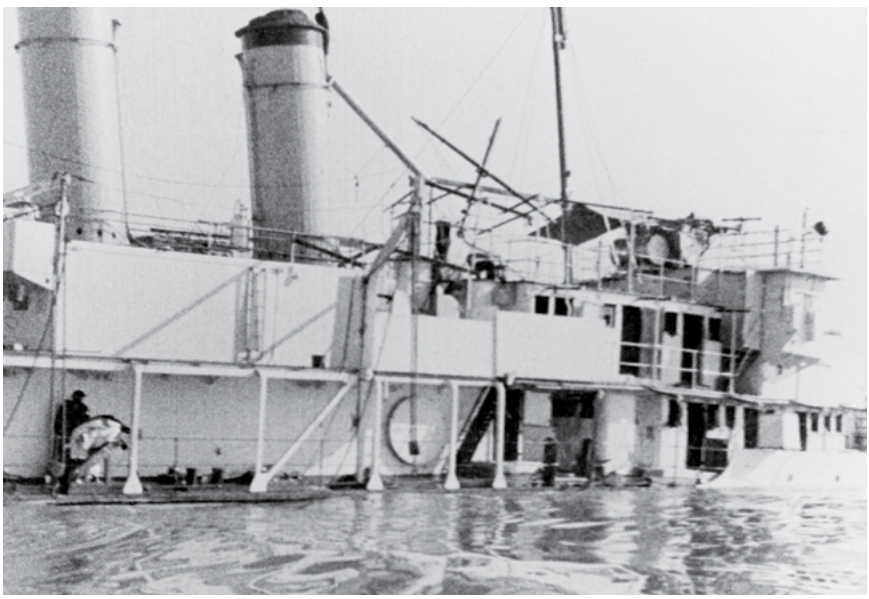
58. CINCAF to SECNAV, "Statements."

59. CINCAF to SECNAV, "Statements."

60. CO to SECNAV, "USS *Panay*"; CINCAF to SECNAV, "Statements."

61. McKittrick et al., "Finding of Facts."

The evacuation of *Panay* took nearly an hour as the plodding sampans made the trip several hundred yards each way to shore.[62] As one of the reporters looked back on the settling gunboat, he saw that "there was barely a square foot of surface on either side of the vessel which was unscarred from the fragmentary explosions."[63] The severely wounded were taken off first, followed by the civilians, and finally the uninjured crewmembers.[64] While the sampans made the slow trip to the muddy riverbank, Japanese aircraft machine-gunned the wooden craft, hitting Storekeeper First Class Charles L. Ensminger and Motor Machinist Alex Kozak, who had both already sustained shrapnel wounds.[65]



View of *Panay* with its main deck awash and its foremast wrecked as it sinks into the Yangtze River after being bombed by Japanese aircraft on 12 December 1937. (NHHC, NH 50807)

62. McKittrick et al., "Finding of Facts."

63. CINCAF to SECNAV, "Statements."

64. Herbert S. Ros, "I Was On Board *Panay*," *Proceedings* 113, no. 12 (1987): 74.

65. McKittrick et al., "Finding of Facts"; J. M. Sheehan, "List of Survivors"; Perry, Panay *Incident*, 124.

## Seeking Help

The aircraft had also targeted and damaged the three tankers with *Panay*, but the captain of one of the ships that retained steering attempted to maneuver his ship alongside to take off personnel from *Panay*. Fearing an explosion of the tanker's combustible cargo, however, *Panay*'s crew waved off the would-be rescuer.[66] By approximately 1500, the evacuation of *Panay* was complete, and the main deck was awash.[67] Yet, the ship remained afloat nearly half an hour longer, and Chief Boatswain's Mate Mahlmann and another sailor volunteered to make one last trip to *Panay* to recover additional medical supplies and provisions.[68] As the pair made their way back

*Panay*'s motor sampan loaded with survivors and salvaged supplies reaches the bank of the Yangtze River after the gunboat's loss on 12 December 1937. (NHHC, NH 50823)

66. CINCAF to SECNAV, "Statements."

67. McKittrick et al., "Finding of Facts."

68. Sterner, *United States Navy Heroes*, 295; Perry, Panay *Incident*, 125, 129.

to shore, a small Japanese boat full of soldiers approached *Panay* and raked the gunboat's empty decks with machine gun fire despite the still clearly visible U.S. flags. The soldiers then briefly boarded the ship before retiring.[69] Witnessing this spectacle, *Panay*'s survivors believed that the Japanese still wished to kill them.[70] The sailors retreated into the reeds to avoid being spotted by aircraft and solemnly watched their ship roll to starboard and sink.[71] They then set themselves to the tasks at hand.

The Navy Reserve's 1930 manual on damage control listed "care of the wounded" as a distinct category of damage control alongside repairs, stability control, gas defense, and firefighting.[72] With the loss of *Panay*, the gunboat's crew directed their energies to effecting their rescue and ministering to their casualties. According to subsequent reports, as many as 14 members of the party were seriously wounded and needed medical care, while an additional 35 were slightly wounded.[73] The less seriously injured assisted in the care of their immobile comrades, while others recreated the ship's roster to make sure that everyone was accounted for.[74] The incapacitated Lieutenant Commander Hughes named Captain Roberts, the Army military attaché, as his representative and tasked him with securing food, shelter, and medical care for the group as well as establishing contact with the U.S. embassy to arrange rescue. Captain Roberts, who spoke Chinese fluently, in turn dispatched Mess Attendant First Class Yuan T. Erh, and other members of the embassy staff who spoke Chinese, to locate nearby villages where they could obtain shelter and aid.[75] Roberts also sent Robert Paxton of the U.S. Em-

69. McKittrick et al., "Finding of Facts."

70. Ros, "I Was On Board *Panay*," 74.

71. CINCAF to SECNAV, "Statements"; Perry, Panay *Incident*, 127.

72. U.S. Navy Department Bureau of Navigation, *Interior Control Manual*, 18.

73. J. M. Sheehan, "List of Survivors"; McKittrick et al., "Finding of Facts."

74. Perry, Panay *Incident*, 129.

75. Douglas C. Peifer, *Choosing War: Presidential Decisions in the* Maine, Lusitania, *and* Panay *Incidents* (Oxford University Press, 2016), 165; CINCAF to SECNAV, "Statements."

bassy staff to the nearest large city to telephone the U.S. Embassy in Hankow and inform them of the attack.[76]

Survivors of *Panay* take refuge in tall reeds on the banks of the Yangtze on 12 December 1937. In the foreground sits Chief Quartermaster John Lang holding a bandage to his face. Standing behind Lang and wearing a hat is George Atcheson Jr. of the U.S. Embassy in China. Atcheson is speaking to Weldon James of United Press Picture. (NHHC, UA 462.29)

These efforts succeeded both in establishing contact with the embassy and with Chinese locals who aided the party. Erh soon returned with Chinese villagers who guided the shivering survivors by boat to a nearby settlement.[77] The party started out after dark, but upon reaching the village, Roberts immediately determined that they needed to press on to a bigger settlement with medical facilities. It was a difficult decision to order the party back into the night. The shock of the attack, shrapnel wounds, and the dropping

76. Alley, *I Witness*, 273.

77. Alley, *I Witness*, 275.

temperatures were all taking a physical toll on the men.[78] Roberts, however, was unwilling to divide the party and risk prolonging rescue. He also knew the urgency of getting medical assistance for the severely injured men. Setting out in relays, the lead elements of the group reached the town of Hohsien around midnight, roughly six miles away.[79] Unfortunately, Hohsien's hospital possessed neither beds nor surgical equipment, and despite Dr. Grazier's best efforts, Storekeeper First Class Charles L. Ensminger and Italian journalist Sandro Sandri died from their wounds on 13 December.[80]

Although the condition of the remaining wounded had deteriorated, Roberts, Dr. Grazier, and George Atcheson of the U.S. Embassy staff resolved to press inland while the party was still mobile in order to reach a larger city with a modern hospital.[81] Many sailors' minor wounds would become serious if not treated soon. Roberts also had reports of nearby Japanese troop landings and observed the Japanese aircraft that buzzed low over Hohsien that day, presumably looking to eradicate *Panay*'s survivors.[82] Traveling 10 hours through the night in canal boats to Hanshan, the group received a call from Rear Admiral Reginald V. Holt of the Royal Navy shortly after arriving. Holt informed Atcheson that two Royal Navy gunboats had anchored in the Yangtze near Hoshien to rescue the survivors, with the U.S. Navy gunboat *Oahu* (PR-6) steaming at flank speed to join them.[83] After retracing their route from the night before, the ordeal of *Panay*'s crew finally ended on 14 December when they boarded a flotilla of British, American, and Japanese gunboats. Escorted by Japanese destroyers, most of the party was swiftly evacuated to Shanghai, while HMS *Bee* took the severely wounded to Wuhu.[84] One

78. Perry, Panay *Incident*, 140.

79. Perry, Panay *Incident*, 136, 146; Ros, "I Was On Board *Panay*," 75.

80. Perry, Panay *Incident*, 147, 174; Peifer, *Choosing War*, 166.

81. Perry, Panay *Incident*, 149.

82. Perry, Panay *Incident*, 176–7.

83. Ros, "I Was On Board *Panay*," 79.

84. Koginos, Panay *Incident*, 30.

week later, Coxswain Edgar W. G. Hulsebus was the final member of *Panay*'s crew to die from his wounds.[85]

The sinking of *Panay* occurred during a period of intense focus on damage control within the Navy and highlighted the importance of building ships with survivability in mind. Following World War I, the U.S. Navy looked at the experiences of the British and German fleets at the Battle of Jutland to develop its own modern damage control protocols. In 1924, the preface to the Navy's *Principles of Naval Architecture and Warship Construction* contained no reference to damage control, watertight integrity, or the concept of survivability. A little more than a decade later, in 1935, the authors' preface for the revised volume defined damage control and highlighted its principles in distinct new sections of the book.[86] Many of these requirements stemmed from German damage control regulations since the ships of the *Kaiserliche Marine* had survived greater damage than the Royal Navy's warships.[87] By 1936, the U.S. Navy required shipbuilders to provide copies of a tailored damage control book upon delivery of every new vessel.[88] Naval combatants constructed in the years immediately prior to the United States' entry into World War II in 1941 included fire mains, main drainage, and air systems that all featured increased numbers of isolation valves and firefighting plugs accessible throughout even the largest ships. These innovations came too late for the crew of *Panay* and would have been of marginal utility in keeping the vessel afloat. Following the loss of the gunboat, however, a Navy court of inquiry convened to investigate the disaster and

85. McKittrick et al., "Finding of Facts."

86. G. C. Manning and T. L. Schumacher, *Principles of Warship Construction and Damage Control* (U.S. Naval Institute, 1935), v, x.

87. Jeremy P. Schaub, "U.S. Navy Shipboard Damage Control: Innovation and Implementation During the Interwar Period" (master's thesis, U.S. Army Commander and General Staff College, 2014), 33, https://apps.dtic.mil/sti/pdfs/ADA613481.pdf. The German Empire's navy was known as the German Imperial Fleet (*Kaiserliche Marine*), however, Germany's defeat in World War I led to the demise of both the empire and its navy.

88. U.S. Navy Department, Bureau of Construction and Repair, *General Specifications-Appendix 15: Instructions for Preparing Damage Control Books for Vessels of the United States Navy* (GPO, 1936), 1.

recommended that "the inadequacy of the anti-aircraft defense for naval ships be given immediate consideration by the department."[89]

In the surprise attack on *Panay*, the gunboat's crew demonstrated exceptional composure and courage in a moment of crisis. Together, the sailors fought their ship and endeavored to save it in the face of damage wholly beyond what the vessel was ever intended to withstand. When it became clear that *Panay* was sinking, the captain and executive officer independently ordered the crew to abandon ship at the same time, highlighting the two officers' identical appraisal of the situation. The crew then executed the evacuation while also calmly preparing to meet the challenges they would face ashore in a hostile environment. Saving sailors' lives is a critical component of damage control at sea, because a warship is victorious in war only through the efforts of every one of its crewmembers. Sailors must know that their well-being is a priority of their fellow sailors and leaders, especially in moments of crisis, so that they can give their all in accomplishing the mission. It is a testament to the training and heroism of *Panay*'s crew that not a single sailor or refugee was left behind on the stricken vessel. The U.S. Navy subsequently awarded 23 members of *Panay*'s crew the Navy Cross in recognition of their heroism.

89. Sterner, *United States Navy Heroes*, 291–97; McKittrick et al., "Finding of Facts."

# Against the Divine Wind

Guy J. Nasuti

Boatswain's Mate Second Class Robert Shafer watched the Japanese Mitsubishi A6M "Zero" carrier fighter aircraft as it flew out of a low-hanging cloud, came about, and dropped out of sight before striking his ship, the light cruiser *Nashville* (CL-43), while it steamed toward the Philippine Island of Mindoro on 13 December 1944. Intense fires immediately broke out on both the port and starboard sides as Shafer instantly sprang into action. A shipmate quickly passed a fire hose down to Shafer so that he could put out a smaller fire threatening the bridge. He turned the nozzle on, but there was no water pressure at first due to shrapnel shredding most of the hose. After enough water streamed out of the hose to battle the small blaze in front of him, Shafer began to put the fire out. He next entered a space in an attempt to save some shipmates he thought were trapped there, but to his horror, he found only the remains of six charred bodies. Making his way forward, Shafer continued wetting down red-hot munitions threatening to cook off and possibly destroy the ship before an explosion from a 5-inch shell in a nearby space knocked him unconscious. After a sailor pulled Shafer out of the wreckage and a corpsman placed bandages over his eyes, Shafer again passed out,

Light aircraft carrier *Belleau Wood* (CVL-24) burns aft after the ship was hit by a kamikaze while operating off the Philippines on 30 October 1944. Flight deck crewmen are moving undamaged TBM torpedo aircraft away from the flames as others fight the fires. Carrier *Franklin* (CV-13), also hit during the kamikaze attack, burns in the distance. (NHHC, 80-G-342020)

only to wake hours later, unable to see or speak. Despite suffering from flash burns caused by fighting fires, he was later asked to identify the bodies of dead shipmates, including two of his best friends. The light cruiser suffered 133 dead and 190 wounded in the sudden kamikaze attack. *Nashville* was just one of hundreds of U.S. ships hit by kamikaze attacks in the final year of the war. These experiences provide the U.S. Navy a prime template for evaluating what measures and training will be the most critical to damage control in future conflicts.[1]

The two most common priorities for damage control teams during World War II were, first, to minimize and eliminate the extent of flooding and, second, to extinguish all fires. Although flooding and other dangers could often be contained by setting material conditions such as X-ray, Yoke, Zebra, Darken Ship, and William throughout the ship, pumping seawater out of affected spaces to control a vessel's buoyancy, trim, and list remained essential in keeping a ship seaworthy.[2] Fires, on the other hand, could quickly spread to munitions, gas lines, and other flammables, with the potential to initiate explosions that often tore ships apart. In vessels of smaller

1. Robert Shafer, "The Kamikaze Strike," *Naval History*, April 2008, https://www.usni.org/magazines/naval-history-magazine/2008/april/kamikaze-strike.

2. Setting a material condition of readiness involves sealing specific sets of fittings or closures that improve a warship's resistance to damage or contamination at the cost of crew mobility.

sizes, especially on board destroyers, fires greatly interfered with shiphandling and other problems that ensued after damage was incurred. In fact, "fires normally must be brought under control before control of flooding can be undertaken," a later study asserted.[3] Firefighting techniques usually were "much more efficient than those employed to control flooding," the study concluded, and thus the higher number of destroyer losses during the war were attributable to progressive flooding rather than to fire.[4]

The crew aboard the aircraft carrier *Enterprise* (CV-6) work to extinguish the fire caused by a kamikaze strike off Japan on 20 March 1945. The burning aircraft are Grumman F6F Hellcats that were participating in raids on the Japanese home islands. (NHHC, 80-G-274216)

3. Records of the Bureau of Ships, *Destroyer Report: Gunfire, Bomb and Kamikaze Damage Including Losses in Action 17 October 1941 to 15 August 1945*, War Damage Report No. 51 (U.S. Hydrographic Office, 25 January 1947), 7, https://www.history.navy.mil/research/library/online-reading-room/title-list-alphabetically/w/war-damage-reports/destroyer-report-gunfire-bomb-kamikaze-damage.html.

4. Records of the Bureau of Ships, *Destroyer Report*, 7.

## Fighting the Kamikaze, Saving the Ship

U.S. Navy ships had to contend with incessant attacks by kamikaze, translated as "divine wind," throughout the 10-month-long campaign in the Philippines (20 October 1944–15 August 1945). Although kamikazes are most commonly associated with aircraft, they could also take the form of Japanese midget submarines, torpedo boats, and suicide swimmers. The Imperial Japanese Army and Navy aircraft squadrons of the special attack corps continued harassing U.S. ships during the invasion of Iwo Jima, making their only sortie on the night of 21–22 February 1945. That night, two kamikazes struck the escort carrier *Bismarck Sea* (CVE-95), the last American carrier to be sunk during the war. As a firefighting team managed to bring a large conflagration under control, which was started by a kamikaze striking the hangar bay, a second kamikaze made a vertical dive on *Bismarck Sea*, wiping the fire team out. Flames touched off munitions and fueled fighter aircraft in the hangar bay, turning the ship into an inferno. With no chance to further institute damage control efforts, *Bismarck Sea* was abandoned. In total, 318 of its crew were killed. Although kamikaze strikes continued harassing the fleet as it approached Japan's home islands, and despite such horrific losses, American sailors valiantly persisted in their attempts to save their ships.[5]

During the Battle of Okinawa (1 April–22 June 1945), Japanese resistance stiffened, and the Imperial Japanese Army and Navy coordinated the launching of 10 massed kamikaze attacks from land bases against U.S. Navy ships. Often involving hundreds of aircraft, these *kikusui*, "floating chrysanthemum," massed assaults left American crews extremely stressed and exhausted. To add to the tension, the enemy attacks often commenced at dawn or just after sunset, with kamikaze pilots flying below radar or diving into a ship from above, out of cloud cover. The unrelenting and ever-changing attacks necessitated American sailors to remain at general quarters on a near-constant basis with little respite. This incessant state of

5. Mike Yeo, *Desperate Sunset: Japan's Kamikazes against Allied Ships, 1944–1945* (Osprey Publishing, 2019), 159.

readiness led to fatigue, which in turn occasionally resulted in deadly mistakes and accidents. Once their ship was struck by an enemy aircraft, sailors not manning antiaircraft guns immediately leapt into action to conduct repairs or extinguish fires. Sailors battled fires that imperiled ships and shipmates, tossed ammunition threatening to explode over the side, shored up collapsing bulkheads, and tended to the wounded and the dead.[6]

Prior to the battle, the Navy organized 15 radar picket stations surrounding Okinawa. The majority of kamikaze strikes were directed against the smaller destroyers, destroyer escorts, tank landing ships (LSTs), minesweepers, and other vessels that conducted patrols, fire support, and other duties while manning these stations. With orders to warn the larger fleet vessels of approaching enemy air raids, the picket ships were exposed in an extremely high-risk environment, straining the capabilities of American sailors performing several collateral duties aboard their ships. Often receiving the brunt of the attention from young, inexperienced kamikaze pilots determined to crash into the first U.S. ship they could find, the smaller picket ships experienced the vast majority of the Navy's casualties during the battle.[7]

Crewmembers aboard the *Allen M. Sumner*-class destroyer *Laffey* (DD-724) were no strangers to kamikaze attacks. Veterans of the Normandy invasion in June 1944, American sailors aboard *Laffey* had a front-row seat to the terrifying aerial phenomenon unleashed by a desperate enemy in October of that same year, during the invasion of the Philippines. *Laffey* continued to support Allied naval forces at Iwo Jima in February 1945, before steaming for Okinawa in late March. With the invasion of Okinawa set for 1 April, Quartermaster Third Class (QM3c) Aristides Phoutrides and the rest of *Laffey*'s crew helped take the islands of Kerama Retto, some 20 miles west of Okinawa.

Upon arrival into the anchorage at Kerama Retto, the sailors aboard *Laffey* noted a plethora of damaged Navy ships, all victims of

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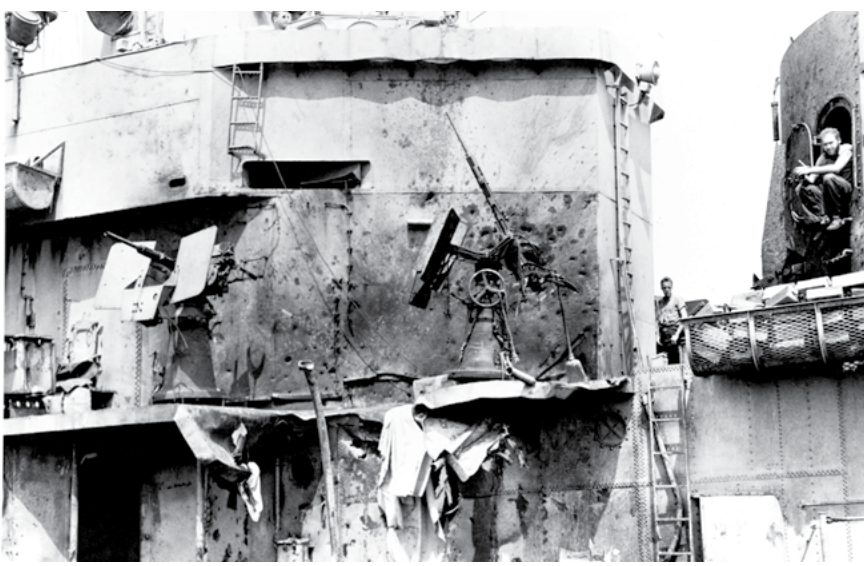
6. Guy J. Nasuti, *"On the Verge of Breaking Down Completely": Surviving the Kamikaze off Okinawa, 1945* (Naval History and Heritage Command [NHHC], 2023), 85.

7. Nasuti, "*On the Verge*," 10–15, 33–39.

kamikazes, in what quickly became known as "the bone yard."[8] On 13 April 1945, Petty Officer Third Class Phoutrides recalled *Laffey*'s assignment to radar picket station 1, soon to be the deadliest place on earth for Navy ships and their crews. "Up to this point we . . . had it easy," Phoutrides recalled decades later, "but this time we felt that when we got the orders . . . most of us felt our luck had run out. And you know sailors are pretty superstitious people. And . . . we got the orders on Friday the 13th . . . . And then somebody said, look at the number of the ship, 7-2-4 that added up to 13. They said absolutely we're going to get hit you know or something's gonna happen to us."[9]

Three days later, on 16 April 1945, the sailors aboard *Laffey* endured a nearly relentless 80-minute assault by approximately 22



On 16 April 1945, the Destroyer *Laffey* (DD-724) was severely damaged by four bombs and five kamikaze hits during Operation Kikusui III while steaming 30 miles north of Okinawa. This is a view of the ship's 20-millimeter guns on the starboard side, abreast the bridge. (NHHC, NH 75436)

8. Nasuti, "*On the Verge*," 15.

9. Aristides Phoutrides, "An Interview with Aristides Phoutrides," interview by Richard Misenhimer and Gayle Misenhimer, 3 June 2015, Portland, OR (The National Museum of the Pacific War, October 2023), 26–27, https://texashistory.unt.edu/ark:/67531/metapth1606862/?q=Phoutrides.

kamikazes and dive-bombers during Operation *Kikusui* III. The Japanese sent 165 kamikaze pilots along with 150 conventional escort and bomber aircraft over the radar picket stations to cause as much carnage as possible. *Laffey*'s crews shot down nine attacking kamikazes and damaged all five of the suicide aircraft that eventually smashed into the destroyer. Commander Frederick Julian Becton, *Laffey*'s commanding officer, noted that the last kamikaze to hit the ship struck amidships, igniting a raging inferno. Japanese dive-bombers and further kamikazes continued the assault, even after four separate bomb strikes caused explosions that jammed the rudder and started fires in all three aft living spaces. Power was knocked out in the number two 5-inch gun mount, the starboard yardarm received damage, and two 20-millimeter guns below the bridge were wiped out. Another fire in the vicinity of the number four 40-millimeter gun mount also broke out due to the attack. Despite several fires simultaneously raging out of control, slow flooding in the aft part of the ship, and the deaths of 32 sailors during the action, Commander Becton rallied his crew to save the ship and demonstrated remarkable leadership by exhorting them to keep up their intense antiaircraft fire against the kamikazes while continually praising their excellent prowess in damage-control measures. While firefighting teams extinguished the fires aboard the destroyer, some 71 or 72 seriously wounded sailors were transferred to a smaller ship to move them out of harm's way. With the destroyer listing due to flooding in several of its compartments, a light minesweeper towed *Laffey* until a tugboat came alongside to assist in guiding the severely damaged destroyer to Kerama Retto, while a second tug aided in pumping out *Laffey*'s flooded spaces.

Commander Becton, deftly maneuvering his ship throughout the seemingly endless Japanese attacks, humbly praised his exhausted crew for saving the destroyer. He recalled *Laffey*'s damage control parties continually conducting repairs to the ship, all while under constant attack, and despite the fact that "succeeding hits undid much of their previous efforts and destroyed more of their

firefighting equipment."[10] He noted his crew's utter fearlessness in combating the fires ignited by the kamikaze strikes and praised the gunners who went down fighting. The destroyer remains one of the most decorated ships in U.S. Navy history, with two officers (including Commander Becton) awarded the Navy Cross and additional honors going to *Laffey*'s sailors, including six Silver Stars, 18 Bronze Stars, a Navy letter of commendation, and the Presidential Unit Citation.[11]

Throughout the battle, there were many occasions in which a ship sustained tremendous damage that necessitated the assistance of tugboats and smaller craft to tow the vessel off the front lines to safety. Just as often, the ingenuity of a vessel's crewmembers saved the ship from becoming a total loss. On 29 April 1945, the destroyer USS *Haggard* (DD-555) steamed off the coast of Okinawa on picket station 10. Under attack from several kamikazes, a bomb-laden Zero aircraft crashed into the starboard side at frame 112 of the destroyer and tore the ship open at the waterline. The tin can's skipper, Lieutenant Commander Verner J. Soballe, recalled the heroic efforts of his crew, noting the forward engine room and forward and aft fire rooms were open to the sea, with flooding nearly causing the destroyer to capsize. Using mattresses taken from nearby berthing compartments to shore up some of the smaller holes created by the kamikaze's bomb, the crew also ably knocked down all of the fires aboard, allowing them to turn their attention to pumping out water from affected spaces. However, dead in the water due to a loss of power, *Haggard* had two large holes caused by the aircraft and the bomb's detonation, "one about 18 by 20 feet and the other one about six feet square," which threatened to become a larger problem.[12]

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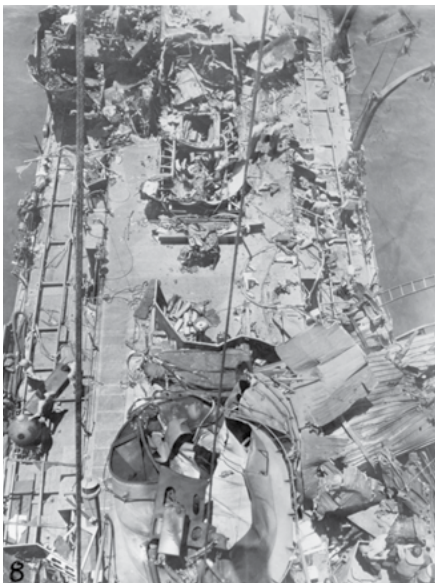
10. Samuel J. Cox, "H-045-1: 'The Ship That Wouldn't Die (2)-USS *Laffey* (DD-724), 16 April 1945,'" NHHC, last modified 16 April 2020, https://www.history.navy.mil/about-us/leadership/director/directors-corner/h-grams/h-gram-045/h-045-1.html.

11. Cox, "The Ship That Wouldn't Die."

12. V. J. Soballe, Oral History Interview, 4 September 1945, World War II Oral Histories, Interviews, and Statements, Records of the Office of the Chief of Naval Operations, Record Group 38, 2, National Archives and Records Administration, Washington, DC, https://s3.amazonaws.com/NARAprodstorage/lz/dc-metro/rg-038/2990147/2990147-27-11/2990147-27-11.pdf.

Towed approximately 175 miles to Kerama Retto, *Haggard* was put on a waiting list due to the number of ships damaged by kamikazes and awaiting repair. An LST that was converted into a repair shop furnished power, steam, and fresh water, while divers went into the flooded spaces to remove the bodies of dead sailors. The destroyer's repair parties sought materials from around the harbor to conduct minor repairs while a chief machinist's mate "ran across a good stock of flight deck lumber . . . and got about eighty pieces . . . to construct a wooden patch to fit over the large hole."[13] In just two weeks, the crew, with assistance from the ship repair unit of cargo ship *Zaniah* (AK-120), had enough lumber, mattresses, and other spare parts to create a temporary patch to the ship's hull, installing it with help from a fleet tug and rather ingeniously using the ship's anchor to hold it in place. Once the flooded engineering spaces were pumped dry, *Haggard*'s sailors, regardless of their ratings, successfully worked together to make the destroyer watertight and seaworthy for a voyage home. All the while, they remained on constant alert for enemy air raids, requiring the manning of general quarters sometimes two to three times a day. *Haggard* did not get underway again until the morning of 14 June 1945, nearly two months after the kamikaze attack. As the destroyer steamed toward Saipan in late June, Lieutenant Soballe awarded the Bronze Star to



Damage amidships received to the light minelayer *Aaron Ward* (DM-34) during kamikaze attacks off Okinawa on 3 May 1945. View looks down and aft from *Aaron Ward*'s foremast, with its greatly distorted forward smokestack in the lower center. A mine is visible at left, on the ship's starboard mine rails. (NHHC, 80-G-330107)

13. Soballe, Oral History, 2.

nine members of his crew, including Lieutenant W. D. Crossley, the destroyer's damage control officer.[14]

## Casualty Care Training

Lieutenant Commander Samuel Sherman, a medical doctor specializing in trauma surgery before the outbreak of the war, joined up with the carrier *Franklin* (CV-13) as a flight surgeon while the ship conducted repairs in Bremerton, Washington, after a kamikaze flew into its flight deck on 30 October 1944, during the Battle of Leyte Gulf. Less than five months later, Sherman was a member of the ship's company when, on 19 March 1945, a Japanese aircraft dropped two armor-piercing bombs onto *Franklin*'s flight deck (also Sherman's battle station), and a series of explosions rocked the carrier and tossed an unknown number of sailors overboard into the sea. Noting that there were no corpsmen or any of the carrier's three doctors anywhere to be found to treat dying and wounded shipmates, Lieutenant Commander Sherman grabbed members of *Franklin*'s music band, air group pilots, and the ship's company sailors, whom he had previously given training in first aid, to provide care.[15]

The vast majority of wounded sailors aboard ships hit by kamikazes suffered from burns, mostly due to the large number of fires resulting from aircraft fuel, ship fuel, munitions, and other propellants ignited by bombs and explosions caused by one or more enemy aircraft striking the ship. Often, large fires would break out, threatening not only the structural integrity of the vessel but also the lives

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14. Stephanie Harry, "*Haggard* (DD-555), 1943–1945," NHHC, last modified 2 June 2020, https://www.history.navy.mil/content/history/nhhc/research/histories/ship-histories/danfs/h/haggard.html.

15. Samuel Sherman, "Recollections of LCDR Samuel Sherman, MC, USNR, Flight Surgeon on USS *Franklin* (CV-13) when it was heavily damaged by a Japanese bomber near the Japanese mainland on 19 March 1945," NHHC, published 21 September 2015, https://www.history.navy.mil/content/history/nhhc/research/library/oral-histories/wwii/navy-flight-surgeon-on-uss-franklin.html. Of the three surgeons that Lieutenant Commander Sherman recalled being aboard *Franklin* while providing care from the flight deck, he stated that a Dr. Fox was killed by one of the first explosions at his battle station in sick bay. The other two, a Dr. Fueling and Dr. Kurt Smith, had been trapped in an officer's wardroom for 12–13 hours until they were rescued.

Aircraft carrier *Franklin* afire and listing after two Japanese bombs penetrated the flight deck penetrated the flight deck and exploded in the hangar bay, causing massive fires and other severe damage while operating off the coast of Japan, on 19 March 1945. Photographed from the light cruiser *Santa Fe* (CL-60), which was alongside assisting with firefighting and rescue work. (NARA, 520656)

of damage control teams battling the infernos. "I remember many times a ship behind us, in front of us, or next to us would get hit with kamikazes and go up in flames. We would get all the casualties. The burns were terrible. They had to be treated right away," recalled Commander Anthony F. DePalma, a physician aboard the casualty evacuation transport ship *Rixey* (APH-3), while serving off Okinawa.[16] Other injuries, such as concussions, broken limbs, traumatic amputations, lacerations, and bleeding caused by shrapnel, were often treated with supplies corpsmen and other crew members had on hand. With great planning and foresight, Lieutenant Commander Sherman creatively prepared *Franklin* well for such occurrences. He said, "I had done what we call disaster planning. . . . I had big metal cans, like garbage cans, bolted down all over the flight deck

16. Anthony F. DePalma, interview by Jan K. Herman, 24 May 1994, telephone interview, U.S. Navy Bureau of Medicine and Surgery, Falls Church, VA, https://archive.org/details/de-palma-wwii-physician-uss-rixey.

and the hanger (*sic*) deck full of everything that I needed—splints, burn dressings, sterile dressings . . . sterile surgical instruments, medications, plasma, intravenous solutions other than plasma."[17] This type of advanced planning aboard *Franklin* and all other Navy ships became of the utmost importance for sailors in the struggle between life and death.

The former emergency room trauma surgeon went into action as "most of the stuff I needed was for the treatment of burns and fractures, lacerations, and bleeding."[18] Lieutenant Commander Sherman also recalled a specially equipped coat the ship provided him that allowed the surgeon to treat "hundreds and hundreds" of the heavily damaged *Franklin*'s crew. "I had pouches all over with a couple of extra sized belts . . . that I carried my morphine syrettes in . . . in those days the Navy had a special burn dressing which was very effective. It was a gauze impregnated with Vaseline and some chemicals that were almost like local anesthetics. I would wrap these burn dressings around these guys with the help of my band people or whatever corpsmen I had."[19] Sherman also remembered having to conduct minor amputations to the fingers and toes of men pinned down by fallen debris, including some made of larger steel pieces.

For Lieutenant Commander Sherman and other medical personnel during the war, it remained vital to immediately triage the wounded, which involved separating the seriously wounded from the less seriously wounded and arranging them for the immediate evacuation of those in the former group. While firefighting and other damage control efforts continued over the course of several hours aboard *Franklin*, those critically wounded were evacuated, either via stretcher to the well-equipped sick bay of the light cruiser *Santa Fe* (CL-60), which had pulled alongside the carrier to take off the wounded, or by a second method that involved the use of breeches buoys, a rope-based rescue device. Both methods were also successful in transferring those unable to walk due to their wounds. Lieutenant

17. Sherman, "Recollections."

18. Sherman, "Recollections."

19. Sherman, "Recollections."

Commander Sherman claims that 600 men were evacuated to *Santa Fe* using these two methods; however, it is unclear whether most of these sailors were wounded, killed in action, or died later from their wounds. Casualties aboard the carrier were listed as 807 killed in action, with a further 487 wounded.[20] While approximately 15 other fleet carriers, including *Bunker Hill* (CV-17), *Essex* (CV-9), and *Enterprise* (CV-6), also suffered casualties and severe-to-moderate damage by kamikazes, 86 percent of suicide attacks during the war were against destroyers or smaller vessels. Despite the loss of two smaller escort carriers and 12 destroyers, not one major fleet carrier was sunk due to a kamikaze during the war. Although the size of the ship, larger number of crewmembers, and available repair lockers obviously factored into a carrier surviving hits that would typically sink a destroyer, given time to conduct expeditious damage control efforts, American sailors could always be counted upon to save not only their ships, but their shipmates as well.

## Repairing Damaged Ships

The U.S. Navy also had an advantage in the vast and innovative expeditionary shore-based repair facilities and sea-based tenders standing by to render aid to damaged ships. These facilities, including the largest and best-equipped facility located at Ulithi Atoll, in the Caroline Islands, were able to conduct all but the most major repairs and quickly returned ships to action, greatly reducing the distance a ship steamed back to the area of operations versus acquiring repairs in a stateside shipyard. Fleet Admiral Ernest J. King credited these repair facilities as an important factor in winning the war in the Pacific stating, "A base to supply or repair a fleet five thousand miles closer to the enemy multiplies the power which can be maintained

20. Sherman, "Recollections." For more on the devastating kamikaze attacks on the carrier *Franklin*, see Jeremiah D. Foster, "*Franklin* III (CV-13) 1944–1964," NHHC, last modified 21 November 2019, https://www.history.navy.mil/research/histories/ship-histories/danfs/f/franklin-v.html.

constantly against him and greatly lessens the problems of supply and repair."[21]

Typical of a kamikaze victim benefiting from a forward repair facility was the destroyer *Newcomb* (DD-586). While participating in the landings at Lingayen Gulf, in the Philippines, on 6 January 1945, the destroyer was conducting shore bombardment operations when a kamikaze attempted to crash dive into the ship. Opening fire on the enemy aircraft, *Newcomb* managed to shoot it down, with assistance from another U.S. destroyer some 600 yards off the port beam. Despite helping destroy the kamikaze, the destroyer had accidentally fired on *Newcomb*, killing two sailors and wounding another 15.[22] Exactly three months later (during the first *Kikusui* operation), on 6 April, *Newcomb* was again attacked by kamikazes while off Okinawa. During the desperate fight, eight kamikaze aviators attempted to dive on the destroyer, with four kamikazes and one bomb severely damaging *Newcomb.* The bomb's explosion tore through both engine rooms, leaving the ship dead in the water. In addition, the main deck had ruptured between frames 108 and 135, while the starboard side was blown upward and the port side downward. Both of the destroyer's torpedo mounts, the after stack, 40-millimeter gun mounts, and magazines were all blown over the side by the force of the bomb and the first two kamikaze strikes, while the third kamikaze smashed into the forward stack and added further gasoline to the fire amidships. The fourth kamikaze struck amidships and then crossed the fantail of the destroyer *Leutze* (DD-481), which had pulled alongside in a selfless effort to help *Newcomb* battle its fires despite the intense enemy air attacks. Unfortunately, *Leutze* also suffered damage from the fourth kamikaze that hit *Newcomb* and had to retire to make repairs to its damaged stern. Destroyer *Beale* (DD-471) next came on station to assist its fellow *Fletch-*

21. Trevor Prouty, "Forward Battle Damage Repair Keeps Ships in the Fight," *Proceedings* 148, no. 1 (2022), https://www.usni.org/magazines/proceedings/2022/january/forward-battle-damage-repair-keeps-ships-fight.

22. I. E. McMillian, "The U.S.S. *Newcomb* (DD-586) - Victim of the Kamikazes," *Proceedings* 74, no. 6 (1948), https://www.usni.org/magazines/proceedings/1948/june/uss-newcomb-dd-586-victim-kamikazes.

*er*-class vessel, with the crew passing over fire hoses to the exhausted, but determined, *Newcomb* sailors. Within half an hour, *Beale* helped get the raging fires aboard *Newcomb* under control, extinguishing all of them only 30 minutes later.[23]

The immense damage received by destroyer *Newcomb* (DD-586) from kamikaze hits off Okinawa on 6 April 1945, photographed after pulling into Kerama Retto five days after the attacks. (NHHC, 80-G-330100)

Towed back to Kerama Retto, *Newcomb* arrived at the repair facility around 0930 the next morning, after tensely waiting six hours to pull into the harbor. The delay was caused by the near-constant warnings of further Japanese air attacks. Initial salvage operations were conducted to stop minor leaks and pump water out of flooded spaces and included the retrieval of the bodies of eight men from the machinery spaces. The busy facility at Kerama Retto, with a long list of ships awaiting repairs from kamikaze damage, finally put *Newcomb* in dry dock in order to fix its main deck and other structural impairments. Repair crews installed temporary bulk-

23. Records of the Bureau of Ships, *Structural Repairs in Forward Areas During World War II* (Navy Department, 1949), 59, https://www.history.navy.mil/content/history/nhhc/research/library/online-reading-room/title-list-alphabetically/s/structural-repairs-forward-areas-wwii.html#NEWCOMB.

heads and conducted web frame overhauls, while all shell holes and the damaged portion of the deck were covered with plating, repairs typically conducted in shipyards back in the United States, not in the middle of a war zone. However, the temporary mends made to kamikaze victims saved more than a few ships from long voyages back to West Coast shipyards, allowing a return to action against the enemy. The casualties suffered by a ship's crew were often more difficult to replace. In total, 43 of *Newcomb's* sailors were killed, with 64 wounded. The inspiring story of *Newcomb*, while not truly unique among kamikaze victims, provides positive proof of the Navy's peerless efforts and teamwork in all manner of conducting effective damage control.[24]

During the three-month-long battle at sea off Okinawa, nearly 5,000 American sailors were killed, and another 5,000 were wounded, a number greater than U.S. soldiers (4,675) or Marine Corps personnel (2,938) killed on the island.[25] If not for the outstanding leadership of ship commanders and damage control officers, as well as the superlative performance of American sailors aboard vessels damaged by kamikazes, the numbers of both U.S. casualties and ships lost likely would have been far higher before the surrender of Imperial Japan on 15 August 1945. The significance of leadership in meeting this challenge is not always immediately apparent. For instance, after *Bunker Hill* suffered two kamikaze strikes in 30 seconds on 11 May 1945, chaos reigned throughout the ship as dense black smoke and infernos raged aft on the flight deck and in several of the spaces below. In a short time, rumors began to circulate among the crew that Captain George A. Seitz, commanding officer of *Bunker Hill*, had given the order to abandon ship due to the seemingly out-of-control fires and secondary explosions caused by the kamikazes hitting fueled and armed aircraft on the flight deck. In actuality, he had ordered all those aft of the fires to abandon ship, but several crewmembers heard the command incorrectly. Commander Joseph R. Carmichael Jr., the carrier's chief engineer, ordered

24. McMillian, "The U.S.S. *Newcomb* (DD-586)."

25. Nasuti, "*On the Verge*," 80.

his men, including those aft of the infernos, to remain at their posts and continue providing power and water pressure to give those conducting firefighting a chance to save the ship. At a crucial moment, Captain Seitz also put the ship into a hard 70-degree turn, which helped to throw some of the flaming gasoline on the flight deck overboard, assisting greatly in firefighting efforts and reducing the hazards to his damage control teams, who managed to extinguish all fires and save the carrier.[26]

Furthermore, the ingenuity, tenacity, and excellent training demonstrated by Navy crews in the face of kamikaze attacks proved to be the difference maker in damage control efforts. Bold and effective leadership of Navy officers often determined the survival of a ship and its crew, with junior officers, noncommissioned officers, and enlisted personnel repeatedly stepping up after the incapacity or death of a senior commander. While some ships could not be saved because of the tremendous damage they suffered below the waterline and resulting uncontrollable flooding, a great number of Navy ships were kept in the fight by the heroic actions of all hands.

A view of the damage looking down the starboard side to the director's deck, wrought by a kamikaze aboard destroyer *Morris* (DD-417) while operating off Kerama Retto on 6 April 1945. (NHHC, NH 94448)

26. Mark L. Evans and Guy J. Nasuti, "*Bunker Hill I* (CV-17), 1944–1966," NHHC, last modified 25 March 2020, https://www.history.navy.mil/content/history/nhhc/research/histories/ship-histories/danfs/b/bunker-hill-i.html.

## Conclusion

As the 2023-25 conflict in the Red Sea demonstrated, drones and anti-ship missiles constitute a serious threat to American ships and sailors.[27] The persistent threat of swarms of drones descending upon U.S. Navy ships immediately conjures up the horrific and relentless attacks of kamikazes in the final year of World War II, and provides a proven blueprint for how to deal with mass casualties to ships and their crews. Today's damage control training, first learned in boot camp at Naval Station Great Lakes and continued out in the fleet, should reflect realistic, albeit chaotic, battle conditions. With the likely potential for knocked-out equipment, destroyed repair lockers, and dead and wounded shipmates requiring immediate attention, mass casualty drills should prepare all sailors for any conceivable eventualities. The triage and care of casualties, transfer of the critically wounded to hospital ships or military hospitals on land, and the rescue of survivors either blown off or having jumped overboard from a ship during a mass casualty event were very closely related to the immediate damage control repairs of the ship. Such practical institutional training and hands-on experience learned during the war logically allowed the reactions of shipboard sailors to flow naturally when it mattered most. While not every tragic incident or wartime scenario aboard a ship will be the same, today's training should reflect the dangers present at sea, including likely casualties caused by weaponry every bit as deadly as the kamikazes of World War II. Armed with a high degree of experience that resulted in muscle-memory-like training and the knowledge that they were fighting not only for the survival of their ship, but for one another, the American sailors of World War II remain the ideal in all matters of damage control.

27. John Minor, "The U.S. Navy Must Preserve and Use the Lessons from the Red Sea Combat," *Proceedings* 150, no. 12 (2024), https://www.usni.org/magazines/proceedings/2024/december/us-navy-must-preserve-and-use-lessons-red-sea-combat?check_logged_in=1.

# "Those Kids Were Everywhere Doing Everything": Saving *Oriskany* (CVA-34) and *Forrestal* (CVA-59)

Eric J. Perinovic

## The State of Postwar Naval Aviation Safety

Combustibles aboard ship have always been a double-edged sword for navies. On the one hand, combustibles—notably fuel and high-explosive ordnance—are basic requirements for a modern military vessel to function, fight, and win. On the other hand, they are also a constant existential threat to that very ship if control is lost. Fire can rapidly consume a vessel and its crew if it is not quickly contained. The threat of fire is never more omnipresent in the U.S. Navy than aboard an aircraft carrier, particularly its flight deck. Unlike most warships, the crew of an aircraft carrier is required to routinely remove fuel and ordnance from secure bunkers and magazines and transport them onto crowded flight decks, all while air operations occur. To mitigate the threat of catastrophic fires, the modern Navy has developed a highly choreographed series of very strict flight line and flight deck safety and damage control procedures to maximize

safe operations while minimizing casualties and damage potential should anything go wrong.[28]

The origin of many of these procedures stems from the hard lessons learned in the wake of catastrophic fires suffered by the aircraft carriers *Oriskany* (CVA-34) in 1966, *Forrestal* (CVA-59) in 1967, and *Enterprise* (CVAN-65) in 1969 during the Navy's continuous operations off Vietnam from 1964 to 1973. While the Navy developed effective damage control procedures and firefighting training during World War II, jet operations on the Navy's supercarriers during the Cold War presented a different challenge. The Navy began combat operations off Vietnam utilizing a firefighting doctrine last updated in 1951 that proved grossly inadequate in combating the disastrous conflagrations catalyzed by modern high-explosive ordnance and jet fuel, leading to major revisions in firefighting and damage control training, equipment, and procedures that reverberate to this day.[29]

**Table 1: Flight Deck Ignition Source**

| |
|---|
| Hot Engines |
| Engine Exhaust |
| Starting Cart Exhaust |
| Electrical Sparking/Arcing |
| Cutting/Welding |
| Static Discharge |
| Electrmagnetic Radiation |
| Catapult Stream Lines |
| Aircraft Crash |
| Inadvertent Ordnance Discharge |
| Arson/Terrorist Activity |
| Enemy Action |

**Table 2: Type of Fire**

| |
|---|
| Engine/Nacelle |
| Fuel Spill |
| Electrical |
| Catapult Track |
| Flight/Hangar Deck |
| Ordnance<br>Energetic Fill |
| Pyrotechnics |
| Aircraft Crash |
| Fire Threatening<br>Ordnance |

*Source:* Adapted from Darwin, et al., "Aircraft Carrier," 40.

28. Robert L. Darwin, Howard L. Bowman, Mary Unstad, William B. Leach, and Frederick W. Williams, "Aircraft Carrier Flight and Hangar Deck Fire Protection: History and Current Status" (Naval Air Warfare Center Weapons Division, 2005), 41.

29. Henry P. Stewart, LCDR, USN, "The Impact of the *Forrestal*'s 1967 Fire on United States Navy Shipboard Damage Control" (thesis, U.S. Army Command and General Staff College, 2004), 11, https://apps.dtic.mil/sti/pdfs/ADA429103.pdf.

## *Oriskany* Fire (1966)

*Oriskany* suffered the first major conflagration of the Vietnam War and the only one to begin below decks. An *Essex*-class carrier launched late in World War II and not commissioned until 1950, *Oriskany* underwent a 26-month refit to install an angled deck and powerful steam catapults in early 1957.[30] Departing for Vietnam in April 1965, the carrier joined Task Force 77 in launching interdiction and close air support sorties. Multiple aircraft were lost in accidents during its tour, but no damage was done to the ship itself prior to 26 October 1966. On that day, *Oriskany* was serving on Yankee Station in the northern Gulf of Tonkin as part of Task Group 77.0 in tandem with *Constellation* (CVA-64), *Franklin D. Roosevelt* (CVA-42), and their escorts. On station since 24 September, *Oriskany* and the other carriers operated continuously in 12-hour cycles to maintain strikes in 90-minute intervals, with *Oriskany* typically assigned to the 0000–1200 shift.[31] *Oriskany* was slated to come off the line that day, but first it had to recover from the prior night's operations. On the night of 26 October, strike packages were slated for 0000, 0130, and 0300. However, for the fourth night in a row, there was extensive cloud cover, which compelled the task group commander to cancel the nighttime sorties. This cancellation triggered a large-scale choreography of aircraft respotting, munitions defusing, personnel shuffling, and pilot reassigning. Critically, it also included the offloading of dozens of Mk 24 pyrotechnic parachute flares.[32]

When used as intended, the Mk 24 has little inherent capacity for violence. A magnesium flare with two million candlepower intensity suspended from a parachute, the Mk 24's primary purpose was to illuminate targets for nighttime bombing missions. They were triggered by a wire ignition lanyard that was pulled as it was

30. "*Oriskany* (CV-34)," Naval History and Heritage Command (NHHC), last modified 15 May 2008, https://www.history.navy.mil/research/histories/ship-histories/danfs/o/oriskany.html.

31. Wynn F. Foster, *Fire on the Hangar Deck, Ordeal of the Oriskany* (Naval Institute Press, 2001), 14–16.

32. Foster, *Fire on the Hangar Deck*, 25–26.

jettisoned. Because they were used strictly at night, unused Mk 24 flares were unloaded for future use. Aboard *Oriskany*, many were kept in ready storage in compartment A-107-M off the forward hangar bay to facilitate the rapid loading and unloading of unused flares from aircraft. Because of *Oriskany's* 0000–1200 shift, the flares were unloaded each morning for the strikes scheduled after sunrise.[33]

The task of unloading and stowing flares typically fell to junior enlisted aviation ordnancemen, which on the day of the fire fell to Airman Apprentice James John Sider and 17-year-old Airman Apprentice George James. Despite only being in the Navy for seven months, Sider was tasked by his leading petty officer, Aviation Ordnanceman First Class Donald Ross, with overseeing the flare locker. Sider's unofficial duties included stowing, inventorying, and issuing flares during the 0600–1200 shift. That morning, Sider was confronted by seven skids containing roughly 70 unused and unstowed flares left by the night crew. Sider pressed James into helping him move the skids from the quarterdeck sponson to A-107-M. Once there, they had to distribute the flares into three storage bins, which they did by tossing them six feet underhand to one another. Catastrophe struck at 0718 when one of the flares was being passed to Sider. Its ignition lanyard caught on something and dislodged the fuse safety pin. Despite having 20 seconds before ignition to remove the flare, Sider immediately threw it into A-107-M and dogged the hatch.[34]

The safety petty officer, Aviation Boatswain's Mate Second Class Henry Brooks, saw Sider's actions and directed sailors to break out firefighting equipment, jettison pallets of unlit flares, and notify the bridge.[35] Shortly thereafter, the ship was called to general quarters to fight the fire. However, the damage control parties had no time to react as the remaining 650–700 flares in the locker ignited. This produced a 5,400-degree inferno that instantly compromised the

33. Foster, *Fire on the Hangar Deck*, 7–8, 33.

34. Foster, *Fire on the Hangar Deck*, 28–33, 42.

35. Foster, *Fire on the Hangar Deck*, 45.

compartment, burst into the passageway, and killed five sailors.[36] The threat was exacerbated by the Navy's complete lack of equipment or training in fighting magnesium fires. Indeed, the ship's automatic sprinklers unintentionally compounded the disaster as the heat converted the salt water into inflammable hydrogen gas. Overpressure overwhelmed the ventilation system and pushed heat, gas, and steam into 18 compartments, 11 of which were officer staterooms on the second and third decks. There, the magnesium-laced gases ignited anything flammable, including the interior paint.[37] The flames also spread outward to the hangar deck, destroying two helicopters, and upward along the starboard exterior and the No. 1 elevator well between the bow catapults.[38]

Smoke pours from *Oriskany*'s (CVA-34) Hangar Bay #1, during the fire which killed 44 of its officers and men. (NHHC, USN 1121718).

36. "The War: Agony of the *Oriskany*," *Time*, 4 November 1966, https://time.com/archive/6889612/the-war-agony-of-the-oriskany/.

37. Foster, *Fire on the Hangar Deck*, 43–44, 58.

38. Jennifer Rigdon Teeter, "Angels of the *Oriskany*-Fire!," *Naval History,* October 2021, https://www.usni.org/magazines/naval-history-magazine/2021/october/angels-oriskany-fire.

*Oriskany's* damage control center was fully manned and operational within minutes under the oversight of the damage control officer, Lieutenant Commander Milfred Berg, with 24 men under his command. These men answered phones and relayed information to plotters armed with ship charts. The plotters, in turn, relayed information to Berg, who finally gave the information to a sailor marking the plexiglass status board.[39] While Berg immediately ordered engineering to secure the ship's ventilation systems, he was reliant on reports from the repair parties around the vessel to dispatch resources. These reports took time to come in, and their sporadic nature required him to allocate resources as best he could in the face of a deluge of conflicting information and competing priorities.[40] At one point, water from the hoses began leaking into damage control central, which required Berg to calm his sailors and keep them on task.[41] While the magnesium fire limited Berg's ability to act, he ordered the creation of a fire barrier on the hangar deck to buy time. He directed topside crewmen to lower hoses down to the lower decks to help the damage control parties work their way into those spaces. *Oriskany's* skipper, Captain John H. Iarrobino, ordered course changes to disperse smoke.[42]

Hundreds of sailors were caught belowdecks by the fire's rapid and uncontrolled spread. Quartermaster Second Class David Willis used an electrical extension cord to lead 10 sailors through the smoke-choked passages until he came to a recognizable turn that led to the deck. He then found a self-contained oxygen breathing apparatus (OBA) and returned below to help others.[43] Damage control teams sprayed water into the forward berthing spaces to cool them so that rescue teams equipped with OBAs could venture into the superheated compartments. They dragged out burned and asphyxiated sailors, but their hoses generated tons of water that pooled

39. Don Moser, "A Carrier's Agony—Hell Afloat," *Life*, 25 November 1966, 117.

40. Foster, *Fire on the Hangar Deck*, 53–54, 56.

41. Moser, "A Carrier's Agony," 117.

42. Foster, *Fire on the Hangar Deck*, 56–57.

43. Moser, "A Carrier's Agony," 110.

in void spaces and lower compartments. Thus, some sailors found themselves trapped by fire, water, and darkness when local power failures occurred.[44] The water rose so high in some compartments that men had to use scuba gear to swim out and escape.[45]

Many officers woke to suffocating smoke that made their staterooms uninhabitable and escape impossible. However, some were able to access portholes, including Lieutenant Commander Marvin Reynolds, who pried open his and signaled sailors on the deck. They passed him a hose and OBA that allowed him to survive for three hours until rescue. Commander Richard M. Bellinger saved himself by forcibly removing an air conditioner to gain access to a burning catwalk.[46] Once on deck, he donned a fire protective suit and distributed firefighting equipment and OBAs.[47] Some men jumped overboard to escape the flames, and several of them were saved by Lieutenant Commander Dale Barck of Helicopter Squadron 1, who took off against orders to pick up sailors in the water.[48]

Teams in the hangar bay quickly fought to mitigate the damage as the deck was crowded with fuel, high-explosive ordnance, loaded aircraft, paint drums, and liquid oxygen needed to launch combat sorties.[49] Aircraft were moved, accessible ordnance and fuel were jettisoned by hand, and those too hot to handle were sprayed to prevent cooking off.[50] However, that did not stop explosions from occurring as the flames reached additional flares, a liquid oxygen cart, and two helicopters.[51] These blasts killed and injured responding sailors and spread the fire further into the hangar deck, where there were loaded bomb carts. Airman Enrico Massagli prevented two 500-pound bombs from detonating by throwing them overboard.

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44. "*Oriskany*."
45. "The War: Agony of the *Oriskany*."
46. "The War: Agony of the *Oriskany*."
47. Moser, "A Carrier's Agony," 115.
48. Teeter, "Angels of the *Oriskany*-Fire!."
49. Moser, "A Carrier's Agony," 115.
50. "*Oriskany*."
51. Foster, *Fire on the Hangar Deck*, 57–58, 64–65.

The intense temperatures warped bulkheads and nearly caused the hangar bay to buckle. After two hours, the fire was nearly controlled when several drums of paint ignited, rekindling the blaze. Eventually, a ship-wide power outage ensued from the accumulation of water, and *Oriskany* had to rely on emergency generators.[52]

On 26 October 1966, sailors jettison bombs from *Oriskany* to prevent them from detonating in the superheated hangar deck. (NHHC, USN 1118358)

The ship's fire marshal declared the fire under control at 1000.[53] However, it took over seven hours from ignition for *Oriskany's* damage control teams to completely push back the flames, rescue trapped survivors, and recover the dead. Ultimately, 36 officers,

52. Foster, *Fire on the Hangar Deck*, 61–62, 66.

53. Moser, "A Carrier's Agony," 118.

many of them aviators, and eight enlisted sailors perished, with 38 others injured. Aircraft losses included two UH-2A helicopters and an A-1 Skyraider destroyed, with three A-4 Skyhawks damaged from the fire. *Oriskany* itself suffered heavy fire damage and made for Subic Bay on 28 October. There, injured crewmen were transferred to aircraft for medical evacuation to the United States. After making emergency repairs, *Oriskany* sailed for San Francisco Bay Naval Shipyard for overhaul and extensive restoration work that was completed from 23 November 1966 until 23 March 1967.[54]

The Navy gleaned multiple damage control lessons from the *Oriskany* fire. The first was in how it utilized the Mk 24, given the disastrous results of abandoning the onerous peacetime safety standards in favor of the operational need to continually load and unload flares for sorties.[55] The Navy overhauled the procedures for storing, transporting, and operating flares. The simple ring pin safety of the Mk 24 was replaced by a more complicated, two-stage safety that could only be pulled by its parachute.[56] The inquiry board identified the need for improved damage control procedures, increasing the visibility and simplicity of foam firefighting controls, more reliable emergency communications systems not attached to the ship's service telephone, mandatory firefighting training, and the identification of emergency escape routes aboard ship.[57] The number of deaths from asphyxiation compelled the Navy to develop an emergency escape-breathing device.[58]

It was the lot of *Oriskany's* crew to help catalyze, not benefit from, these hard-won improvements to safety and damage control. Instead of damage control regulations saving *Oriskany* in October 1966, it was the resilience, bravery, and initiative of its sailors to keep going in the face of raging infernos and insufficient damage control infrastructure. Captain Iarrobino praised his crew's forti-

54. "*Oriskany*."

55. Foster, *Fire on the Hangar Deck,* 155.

56. Darwin, et al., "Aircraft Carrier," 75.

57. Foster, *Fire on the Hangar Deck,* 155–58.

58. Darwin, et al., "Aircraft Carrier," 75.

tude in rising to preserve their ship, "There were just too many acts of heroism to count. There were literally hundreds. If there hadn't been, God only knows what the toll and the damage might have been."[59] One of *Oriskany*'s chief petty officers bluntly credited the ship's survival to the tenacity of its teenage sailors: "Those crazy rock-'n'-roll jitterbuggers, they saved this ship today. Getting into that fire and pushing those bombs over the side and volunteering for rescue parties—those kids were everywhere doing everything."[60]

## *Forrestal* Fire (1967)

While *Oriskany* was the first major carrier fire off Vietnam, it was not the most devastating. That unfortunate distinction belongs to *Forrestal*, whose July 1967 fire was another reckoning for insufficient fire safety and damage control practices.[61] Unlike *Oriskany*, with its many modifications and overhauls, *Forrestal* was launched in 1954 with all of the operational and safety lessons learned from earlier carrier operations.[62] At 80,000 tons displacement, 1,039 feet in length, and 252 feet in width, *Forrestal* dwarfed the carriers that preceded it.[63] While the carrier's gargantuan proportions provided the world's largest flight and hangar decks, they resulted in a labyrinthine interior that made it difficult for even experienced sailors to efficiently navigate the ship's decks and corridors. Men frequently became lost when transiting parts of the ship they were unfamiliar with despite the presence of numerous orienteering placards and frame numbers. An annoyance during normal operations, this convoluted interior layout became a hazard in an emergency.[64]

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59. "The War: Agony of the *Oriskany*."

60. "The War: Agony of the *Oriskany*."

61. Samuel J. Cox, "H-008-6: USS *Forrestal* Disaster, 29 July 1967," NHHC, July 2017, https://www.history.navy.mil/about-us/leadership/director/directors-corner/h-grams/h-gram-008/h-008-6.html.

62. Mark L. Evans, "*Forrestal* (CVA-59)," NHHC, 2 August 2007, https://www.history.navy.mil/research/histories/ship-histories/danfs/f/forrestal-cva-59.html.

63. Gregory A. Freeman, *Sailors to the End: The Deadly Fire on the Forrestal and the Heroes Who Fought It* (William Morrow, 2002), 8–9.

64. Freeman, *Sailors to the End*, 50–51.

*Forrestal* departed Norfolk Naval Shipyard for the Gulf of Tonkin on 6 June 1967 after having spent May and early June at the Atlantic Fleet Weapons Range simulating the demanding combat operations the crew would face off the coast of Vietnam. It arrived at Subic Bay on 18 July and was on Yankee Station by 25 July. Unlike the grueling weeks of round-the-clock sorties that *Oriskany's* exhausted crew contended with, *Forrestal* was on station for less than a week when tragedy unfolded on 29 July.[65] That day began inauspiciously when a man fell overboard at 0316. While he was successfully recovered, it disrupted *Forrestal's* flight operations until 0513. At 1050, the deck

Crewmen aboard *Forrestal* (CVA-59) battle flames amid smoke and charred debris on the aft flight deck where a violent chain reaction of fires and explosions were set off by an initial blast as attack aircraft were being prepared to sortie. Aircraft on deck are the remains of an RA-5C Vigilante and F-4B Phantom. *Rupertus* (DD-851) is alongside assisting. (NHHC, USN 1126644)

65. Evans, "*Forrestal*."

crew was prepping the day's second sortie by first launching two Douglas KA-3B Skywarrior tankers in tandem with a Grumman E-1 Tracer and a Grumman E-2A Hawkeye airborne early warning aircraft ahead of the strike package comprised of McDonnell Douglas F-4B Phantoms and Douglas A-4E Skyhawks. Just two of these aircraft managed to launch before a Phantom suffered an electrical power surge that discharged a Zuni 5-inch rocket into a parked Skyhawk on the aft port side. Within five seconds, the Skyhawk's fuel load of 400 gallons of highly combustible JP-5 ignited and spread to the neighboring aircraft. Two minutes later, and well before damage control teams could sufficiently react, the first bombs exploded.[66]

Typically, in a JP-5 fire, bomb casings provided damage control teams 10 minutes to react before melting sufficiently to detonate, but that was not the case on *Forrestal*.[67] Bomb stockpiles had dwindled after more than two years of intensive bombing campaigns against North Vietnamese targets to the point that aircraft were increasingly forced to utilize rockets as an unsuitable substitute against major targets. The Navy was compelled to use bombs that had been kept for over a decade in appalling open-air storage conditions at Subic Bay.[68] It was immediately apparent to *Forrestal's* ordnance handlers that many of the bombs they were issued were unsafe due to leakages of their paraffin phlegmatizing agent, which indicated that the explosives had deteriorated to dangerous levels.[69] This deterioration left the bombs highly sensitive to heat and vibrations, which could easily cause an unintended detonation. The weapons officers and enlisted ordnancemen were incensed and worried to have them aboard.[70] They suggested that the bombs be immediately jettisoned to prevent a catastrophe. However, there was no other available ordnance, and *Forrestal's* captain was required to accept their delivery.

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66. Evans, "*Forrestal*."

67. Victoria Pendleton, "The Heritage Hour: *Forrestal*, Fire, and NNSY," U.S. Navy, 7 October 2024, https://www.navy.mil/Press-Office/News-Stories/Article/3927776/the-heritage-hour-forrestal-fire-and-nnsy/.

68. Freeman, *Sailors to the End*, 76–79, 81.

69. Pendleton, "Heritage Hour."

70. Freeman, *Sailors to the End*, 85–86.

As a compromise, the unsafe bombs were stored on deck rather than in the magazine.[71]

Within four minutes of the fire starting aboard *Forrestal*, seven 1,000-pound bombs detonated while rockets and 20-millimeter cannon rounds careened across the deck, and aircraft ejection seats shot into the sky. The explosions blew out the windows in primary flight control and ignited 40,000 gallons of JP-5 on the fantail, which created an immense tower of fire and smoke. Trapped pilots and deck crewmen were left with no choice but to run through the flames to escape. The explosions broke through the flight deck, spreading heat, smoke, and flames to decks 1, 2, and 3. This, in turn, set off the ord-

Crewmen use a water hose to battle compartment fires from the aft flight deck of *Forrestal*. Note that only two of the sailors are wearing the self-contained oxygen breathing apparatus while none of them are wearing protective equipment or clothing. (NHHC, USN 1126632)

71. Pendleton, "Heritage Hour."

nance stored on those decks, which spread the fire further. The crew had two foam hoses working within a minute of the accident under the direction of the crash and salvage officer and chief.[72] Damage Control Team 8, led by Chief Aviation Boatswain's Mate Gerald Farrier, smothered the bombs, but within a minute he ordered his team back when a bomb fractured. He and all but three of his men were killed 30 seconds later when it exploded, followed by a chain reaction of detonations just moments later.[73] These explosions inflicted more casualties on the trained firefighters, damaged precious foam hoses, ignited clothing, and added minutes to the response time—minutes that many of the trapped men did not have.[74]

Regardless of the danger, sailors on the flight and hangar decks took up the available firefighting equipment to prevent more detonations. They also made a path through the flames to allow men to shift parked aircraft, disarm bombs and missiles, and jettison whatever could not be moved quickly. After seeing smoke emitting from 500-pound and 750-pound bombs, Explosive Ordnance Demolition Officer Lieutenant Junior Grade (j.g.) Robert P. Cates defused them before assisting sailors in throwing them overboard. The situation was critical near the island, where sailors desperately tried to jettison the ship's "bomb farm." However, they could do little to slow an inferno fed by 40,000 gallons of fuel as the fire blazed starboard and aft to consume a row of North American RA-5C Vigilantes. Rear Admiral Harvey P. Lanham, Commander, Carrier Division 2 was nearly killed on the bridge. His life was only saved by a boatswain who pulled him down just before an explosion launched a large piece of shrapnel where he had been standing. Explosions blew many men off the deck while others jumped overboard to escape.[75]

Confusion reigned belowdecks as sailors rushed to their general quarters stations and repair parties broke out equipment without clear information. The chief engineer, Commander Mervin Rowland

72. Cox, "*Forrestal* Disaster."

73. Cox, "*Forrestal* Disaster."

74. Evans, "*Forrestal*."

75. Evans, "*Forrestal*."

(a mustang who had served since the 1930s) initially believed the ship had been attacked. He arrived at central control and took charge of the ship's damage control operations. Rowland's initial concerns were maintaining a consistent fire main pressure of 150 pounds and keeping the ship's electrical systems online. He ordered the activation of a generator as a redundancy in case the ship's four main plants failed, analyzed damage reports, allocated resources, and kept Captain John K. Beling informed. On the bridge, Beling monitored the flood of information while steering *Forrestal* to disperse smoke and flame. However, his overriding concern was to prevent the conflagration from reaching the magazines, which could instantly destroy the ship. With the magazine temperature gauges rising, Beling was confronted with a critical decision on whether or not to flood them. Rowland believed they should be flooded immediately, while the weapons officer, Commander Clark Chisum, argued that everything in the threatened magazines was inert. Ultimately, Chisum won out, but Rowland threatened to flood them without authorization if necessary.[76]

As on *Oriskany*, *Forrestal's* crew confronted their inferno with insufficient firefighting training, clothing, and gear, which proved fatal for many sailors. For instance, one team using water hoses washed away a layer of foam, which re-ignited the smothered fire and trapped those sailors. Many were afflicted with hideous burns that were exacerbated by clothing that ignited or melted. The sailors on *Forrestal* were forced to substitute training and proper equipment with raw courage, fortitude, and a willingness to defy death if it meant saving their shipmates. Commander John R. Dewenter praised the ship's junior sailors' willingness to leap at danger:

> No one had better say to me that American youth are lazy. I saw men working today who were not only injured, but thoroughly exhausted and they had to be carried away. They were trying so hard to help, but were actually becoming a burden. [77]

76. Freeman, *Sailors to the End,* 136–40.

77. Evans, "*Forrestal*."

Lieutenant (j.g.) Lee V. Twyford noted a petty officer, who had lost his clothes and most of his skin, crawling with a broken ankle to join the firefighting teams. Subsequent detonations and flames bowled these men over and set their clothes aflame. Seaman Milton Parker fought the fires for nine hours, pausing only to change shoes when the soles burned off. Aviation Boatswain's Mate Larry W. Cope jumped into a forklift that his shipmates sprayed with water to push a burning Vigilante overboard. Lieutenant John E. Carpenter applied a tourniquet to a sailor with a severed artery and held it amid the flames until a corpsman could arrive. Hospital Corpsman Second Class Paul Streetman spent 11 hours on the flight deck, rendering first aid and saving multiple lives. The sick bay was soon overwhelmed with a staggering number of burn victims.[78]

A chief petty officer in hangar bay 3 called for five volunteers and got 30 to fight the fire. Among them was Aviation Machinist's Mate Third Class James G. Smith, who leapt into action, alternatively manning hoses, hurling bombs overboard, providing first aid, and carrying the wounded to the corpsmen and sick bay. The experience of 13 sailors trapped in a compartment on the hangar deck demonstrated the range of human emotions in the face of catastrophe. While some sailors tried to lead their fellow sailors away from the detonations to the flight deck, others broke down in terror or simply stayed rooted. Due to the efforts of those who overcame their fear, all 13 managed to make it topside. When a superheated bulkhead turned sprayed water into steam, Chief Shipfitter Daniel H. Ringer led a party to the flight deck to cut their way into the compartment and spray from above. In recalling the doggedness and bravery of his sailors, Ringer stated, "There was no trouble in getting them to fight the fire. Most of them were eager to help in any way they could."[79]

Unable to fight the fire alone, Beling signaled *Forrestal's* escorts, the destroyers *Rupertus* (DD-851) and *Henry W. Tucker* (DD-875), to close in and assist. *Rupertus* had been on station as plane guard and got as close to *Forrestal's* starboard side as possible before directing

78. Evans, "*Forrestal*."

79. Evans, "*Forrestal*."

its firehoses onto the flight deck. This placed *Rupertus* at immense risk, but the destroyer stayed on station despite being immediately smothered in smoke and threatened by fire. In a twist of fate, *Oriskany* was on hand as a member of *Forrestal's* task force. It gathered up its own escorts, *George K. Mackenzie* (DD-836) and *Samuel N. Moore* (DD-747), and raced to assist. They plucked over a dozen survivors from the water before moving in to use fire hoses. *Intrepid* (CVS-11) arrived on the scene later in the day and used its helicopters to transfer firefighting foam to *Forrestal* while dispatching medical personnel to *Oriskany*, which was accepting *Forrestal's* casualties. Helicopters from *Oriskany, Bon Homme Richard* (CVA-31), and the Republic of Vietnam's Air Force base in Da Nang likewise worked to rescue men in the water and delivered OBAs and extra oxygen canisters to mitigate the woefully inadequate number of OBAs available.[80]

Smoke from the burning *Forrestal*, as photographed from the flight deck of *Oriskany* on 29 July 1967. Aircraft on deck are A-1 Skyraiders and F-8 Crusaders. (NHHC, USN 1125490)

80. Evans, "*Forrestal*."

By 1215, *Forrestal's* embattled crew finally brought the flight deck fire under control, with the hangar deck fires contained by 1342 and extinguished by 0400 on 30 July. The toll from the fire was staggering and the survivors picked through the scorched and flooded compartments searching for the living and the dead. Ultimately, 132 men perished in the conflagration, two were missing, and 161 were left injured. Twenty-one aircraft were destroyed. A total of sixteen ANM-65 1,000-pound bombs, four M-117 750-pound bombs, and eight Mk-82 500-pound bombs detonated, leaving seven holes in the flight deck and mangling a large amount of the interior. *Forrestal* underwent emergency repairs at Subic Bay before returning to the United States. The damage was so severe that it was under repair until April 1968.[81]

An investigation found that "poor and outdated doctrinal and technical documentation of ordnance and aircraft equipment and procedures, evident at all levels of command, was a contributing cause of the accidental rocket firing."[82] In assessing *Forrestal's* damage control, the investigation echoed the *Oriskany* findings in noting the poor state of firefighting training. Notably, it decried the use of water in fighting carrier fires, which just spreads and exacerbates JP-5 fires since petroleum floats atop water. The investigation found that the only effective use for water was as a means of cooling, not extinguishing.[83] It also found that *Forrestal's* lack of a heavy-duty, armored forklift to efficiently jettison heavy aircraft was an exacerbating factor.[84] In the wake of the *Forrestal* disaster, the Navy worked to institutionalize the lessons learned, and intensive firefighting training was made mandatory for all sailors.[85] The flight deck film of the disaster, subsequently entitled *Learn or Burn*,

81. Evans, "*Forrestal*."

82. Cox, "*Forrestal* Disaster."

83. J. M. Caiella, "Dissecting a Carrier Disaster," *Naval History*, August 2022, https://www.usni.org/magazines/naval-history-magazine/2022/august/dissecting-carrier-disaster.

84. Evans, "*Forrestal*."

85. Cox, "*Forrestal* Disaster."

became required viewing for all Navy personnel undergoing firefighting training for years.[86]

The fire also spurred the Navy to completely revise how it utilized firefighting hoses, with the development of an improved centralized damage control and wash-down system that allowed crews to select either water or foam depending on the fire. The first new system was installed on *Franklin D. Roosevelt* during its refit in 1968–69.[87] A major organizational change was the establishment of the Weapon System Explosives Safety Review Board to maintain fleet-wide explosives safety requirements for ordnance.[88]

Lessons learned from *Forrestal* helped mitigate a potentially catastrophic fire aboard *Enterprise* on 14 January 1969. While conducting training operations en route to Vietnam, an improperly placed MD-3A Huffer tractor blew hot exhaust gas onto the warhead of a Phantom's Zuni rocket. This caused the rocket to cook off, which detonated the Phantom's three other Zunis and ignited its fuel tanks. Reminiscent of *Forrestal,* the burning fuel spread down the flight deck while the rockets gouged holes in the deck. Three minutes later, a bomb on the Phantom exploded, creating a large crater, cutting firehoses, destroying the closest foam dispensers, and spreading the fire below. A total of 18 explosions rocked *Enterprise's* flight deck and created five major holes.

Ultimately, 28 men died and 314 were injured, but the disaster would have been far worse were it not for the travails suffered by *Oriskany* and *Forrestal*. Like the rest of the fleet, *Enterprise's* crew received extensive firefighting training after the *Forrestal* fire. Where only 50 percent of *Forrestal's* crew had formal training in 1967, by 1969, 96 percent of *Enterprise's* crew and 86 percent of its air wing had undergone training.[89] Applying the lessons learned saved untold numbers of lives aboard *Enterprise* and

86. Evans, "*Forrestal*."

87. Cox, "*Forrestal* Disaster."

88. Cox, "*Forrestal* Disaster."

89. Samuel J. Cox, "H-025-2: The USS *Enterprise* (CVAN-65) Conflagration, 14 January 1969," NHHC, 31 January 2019, https://www.history.navy.mil/about-us/leadership/director/directors-corner/h-grams/h-gram-025/h-025-2.html

Damage control fire hose crews aboard *Enterprise* (CVAN-65) fight to keep the fire under control on the fantail of the ship on 14 January 1969. Lessons learned from the *Forrestal* fire helped mitigate a potential catastrophe aboard *Enterprise* due to greatly improved firefighting training and damage control procedures. (NHHC, USN 1137375)

prevented a potential nuclear disaster. There is no way of knowing how many sailors have been saved over the last six decades due to the improved safety standards and damage control procedures sparked by the sacrifice of *Oriskany* and *Forrestal's* sailors.

# Enduring the Exocet

Tyler A. Pitrof

The sinking of the Israeli destroyer INS *Eilat* by a Soviet-supplied Egyptian missile boat in 1967 heralded a new age of warfare at sea: one that would be dominated by fear of the anti-ship missile. Not until the 1980s, however, did Western navies endure missile strikes. Ironically, these first strikes came not from Soviet weapon systems but from French-designed MM-38 ship-launched and AM-39 air-launched Exocets, subsonic sea-skimming missiles with a 364-pound warhead and up to a 43-mile range.[1] Exocets were used by the Argentines against the Royal Navy in the Falklands War (1982) and by the Iraqis against the U.S. Navy during the Tanker War (1980–88). In these cases, Exocets penetrated the countermeasures of ships os-

1. "Exocet," Center for Strategic and International Studies, last modified 23 April 2024, https://missilethreat.csis.org/missile/exocet/; Lawrence Freedman, *The Official History of the Falklands Campaign, vol. 2: War and Diplomacy* (Routledge, 2005), 299–305; "EXOCET," MBDA Missile Systems, March 2013, https://web.archive.org/web/20131006223956/http:/www.mbda-systems.com/mediagallery/files/exocet-am39_background-1367919402.pdf; Sandy Woodward with Patrick Robinson, *One Hundred Days: The Memoirs of the Falklands Battle Group Commander* (HarperCollins, 1992), 1–19, 181–202. First fielded in the mid-1970s and capable of launching from ships, submarines, aircraft, and land bases, Exocet takes advantage of the effects of radar horizon to avoid detection by flying extremely low. Accordingly, the missile itself cannot "see" its target with its active radar until it is a few miles away, so it requires an accurate range and bearing to the target prior to firing. Early Exocets were best countered by detection of this pre-launch range-finding, which provided the target an opportunity to deploy radar countermeasures such as chaff.

tensibly designed to defend against such threats on three occasions. The examples of HMS *Sheffield* (D80), HMS *Glamorgan* (D19), and USS *Stark* (FFG-31) demonstrate that postimpact fires and smoke, as well as loss of stability resulting from water used during firefighting, posed greater dangers than the detonation of the missile warhead itself. Thus, the pre-attack posture of HMS *Sheffield*—with open and undogged hatches—effectively doomed the ship because it allowed the uncontained spread of fire and smoke; in contrast, preparedness and quick action by HMS *Glamorgan* contained its damage. *Stark*, while unprepared for an attack, was nevertheless saved by a lengthy and relentless campaign to combat its postimpact fires.

## HMS *Sheffield*

On 2 April 1982, Argentine forces occupied the long-disputed Falkland Islands and South Georgia, sparking a conflict with the United Kingdom. In response, the British government declared an exclusion zone around the region and rapidly assembled a naval task force built around the Royal Navy's two available light aircraft carriers, which sortied south within days. After further preparations at Ascension Island, the carriers and 10 escorting warships arrived off the Falklands on 1 May and commenced preparatory operations for amphibious landings to be conducted roughly two weeks later after additional British forces arrived.[2]

The British carrier battle group off the Falklands—initially made up of 12 warships and around 20 Sea Harrier fighter aircraft—operated 8,000 miles from Britain and 3,800 miles away from the nearest friendly base at Ascension Island but within extreme range of the Argentine Air Force of over 200 aircraft. Within the Argentine inventory, the most dangerous platform was the French-built Super Etendard, which could carry a single AM-39 air-launched Exocet. Argentina was known to possess five such missiles, as well as a considerable stockpile of the surface-launched variant, and

2. Freedman, *Official History*, 3–14, 50–57, 274–88.

was working to obtain more.[3] As the British lacked airborne early warning aircraft, they therefore positioned their carrier battle group to the east of the Falklands to place them at an extreme range for aircraft based on the Argentine mainland, and interposed a radar picket line of three Type 42 guided-missile destroyers between the Falklands and the carriers. On 4 May 1982, this line (from north to south) was made up of HMS *Coventry* (D118), HMS *Glasgow* (D88), and *Sheffield*.[4]

At approximately 1356Z that day (1056 local), a raid of two Argentine Super Etendards from the mainland, each carrying an AM-39 Exocet and approaching at very low altitude, discovered the Type 42 picket line at a range of 25 miles as the aircraft briefly "popped up" to scan for targets. *Glasgow* detected their radar emissions and issued an immediate radio warning to the fleet that went largely unheeded due to numerous false alarms in the previous weeks.[5] Approximately seven minutes later, the completely unprepared *Sheffield* was hit in the starboard side amidships by an Exocet that failed to detonate but created an approximately 4-by-15-foot hole 8 feet above the waterline (the other missile missed). The propellant from the disintegrating Exocet started large and intense fires in *Sheffield*'s auxiliary machinery and forward engine rooms that produced a great volume of acrid black smoke, while the impact caused extensive shock damage that knocked out steering and destroyed the primary fire main.[6] The relaxed posture of *Sheffield*'s crew, the destroyed fire main, and the lack of adequate preparation to deal with the rapid

3. Freedman, *Official History*, 72–77, 233, 264–65, 277, 303, 490, 545; Woodward, *One Hundred Days*, 1–19, 254, 307–34.

4. Freedman, *Official History*, 300–307; Woodward, *One Hundred Days*, 1–19.

5. Woodward, *One Hundred Days*, 2–3. All British forces taking part in the Falklands conflict operated on Zulu or Greenwich Mean Time during this period. With units operating in many time zones and only eight hours of daylight around the Falklands as winter approached, the hope was that by aligning all personnel with the current time at headquarters, mistakes would be reduced and the fleet (being three hours ahead of local time in the South Atlantic) would be better prepared for daylight air attacks.

6. Freedman, *Official History*, 303–6; Office of Commander-In-Chief, Fleet, *Loss of HMS* Sheffield—*Board of Inquiry* (Ministry of Defence, 1982), 2–4; Woodward, *One Hundred Days*, 18–19.

propagation of dense smoke (such as closing and dogging all hatches, which would have been carried out had *Sheffield* been at action stations) precluded any effective damage control. These conditions quickly doomed the ship, which was abandoned at 1750Z. Twenty men died from the initial impact and smoke inhalation, and an additional 26 suffered burns, smoke inhalation, or shock.[7]


The Type 42 destroyer HMS *Sheffield* on fire after being struck by an AM-39 Exocet missile fired by an Argentine Super Etendard on 4 May 1982. The hole in the ship's starboard side is clearly visible. (Crown copyright reproduced under delegated authority from The Keeper of Public Records. Image: Imperial War Museum FKD 66)

The loss of *Sheffield*—the first British warship sunk in combat since World War II—was a profound shock for the Royal Navy. According to the carrier battle group commander, Rear Admiral John

7. Freedman, *Official History*, 303–6; Office of Commander-In-Chief, Fleet, *Loss of HMS* Sheffield, 3–5, A-1.

"Sandy" Woodward, all of those under his command were now at least peripherally aware of:

> That unique, numbing trauma that can grip the people on board when a warship takes a major hit. History is clear enough that there is nothing quite like it—the roaring fires below decks, the blistering heat, the billowing, choking smoke, the cries and whispers of the injured, and the awful sight of dead friends. In addition there are terrible interlocked feelings of anger and fear, outrage and helplessness, and the near-manic heroism which invades the minds of some survivors. Beyond it all is the unspoken dread that another such missile may be on its way in.[8]

## HMS *Glamorgan*

Five and a half weeks passed between the first and last Exocet attacks of the Falklands War. In that time, the Royal Navy endured intense air strikes by the Argentine Air Force, including numerous wavetop raids by A-4 Skyhawks carrying 500- or 1000-pound unguided bombs that caused severe damage. Of the remaining three AM-39 Exocets that the Argentines possessed, two hit the requisitioned transport SS *Atlantic Conveyor* on 25 May 1982 (which subsequently burned and sank with the loss of 12 crew), while the final AM-39 missed.[9] Although the Argentines had expended all of their air-launched Exocets in these efforts, they still possessed a number of the original MM-38 ship-launched version and paired several of these with an improvised mobile shore-based launcher on East Falkland in the hopes of catching British warships close to shore. After British forces landed on East Falkland on the evening of 21 May, only repeated faults and failures with this cobbled-together system prevented the Argentines from firing on Royal Navy warships operating inshore on fire support missions. While the British knew of the shore launcher's existence, they were uncertain of its location, which was changed

8. Woodward, *One Hundred Days*, 236–37.

9. Freedman, *Official History*, 486–87; Woodward, *One Hundred Days*, 417–22, 463–64.

nightly. The British task force therefore remained vigilant for signs of an Exocet launch in the wake of previous losses, erring heavily on the side of caution rather than waiting for solid confirmation of an inbound threat.[10]

On the evening of 11 June 1982, as the battle around Stanley approached its climax, the County-class destroyer HMS *Glamorgan*, commanded by Captain Mike Barrow, was ordered to provide fire support to 45 Commando (a battalion-sized unit of the Royal Marines) advancing on the high ground west of the settlement. Due to the presence of a minefield out to sea and thick kelp beds inshore, reaching an ideal loitering position for this mission on time required *Glamorgan* to cross the southwest corner of what was thought to be the known danger area for the Argentines' improvised Exocet


The County-class destroyer HMS *Glamorgan* (D19) from astern. Note the Seaslug surface-to-air missile launcher on the stern and the flight deck above it. The hangar is just aft of the second funnel, with its door facing the port side. A Westland Wessex helicopter sits on the flight deck. (Crown copyright reproduced under delegated authority from The Keeper of Public Records. Image: Imperial War Museum MH 27570)

10. Freedman, *Official History*, 547–48; Ian Inskip, *Ordeal by Exocet: HMS* Glamorgan *and the Falklands War 1982* (Frontline Books, 2012), 140–41; Woodward, *One Hundred Days*, 308–9.

launcher, centered on Cape Pembroke northeast of Stanley. In reality, that night the missile battery was emplaced at Eliza Cove to the south, extending the danger area significantly farther than was realized. Nevertheless, *Glamorgan* safely reached the gunline around midnight without incident.[11]

After the completion of its fire support mission, *Glamorgan* departed the gunline at 0615Z (0315 local) on 12 June and fell out from action stations at 0630Z as it worked up to 25 knots, exiting the assumed Exocet danger area. At 0636Z, *Glamorgan*'s navigating officer, Commander Ian Inskip, recognized an incoming MM-38 Exocet on radar at a range of eight miles (a little over 30 seconds out) and immediately ordered full starboard rudder to present his ship's stern, the smallest possible target, to the missile. Inskip simultaneously warned the operations room about the fast-moving contact. Fortunately for *Glamorgan*, many of the crew still lingered close to their action stations, with the operations room in particular (where Captain Barrow had merely removed his headset and simply redonned it after Inskip's warning) quickly jumping into action. That said, the contact was approaching from the north, bearing 020, putting it in the dead zone for many ship systems and weapons, especially as Inskip sought to turn almost directly away to 190. There was therefore no time to launch and hide in a chaff cloud. Nevertheless, the quick response of *Glamorgan*'s crew bought just enough time for the operations room to pass targeting data to the ship's Seacat point-defense missile system, which fired a single time at the incoming Exocet. Unfortunately, the Seacat missed, possibly due to the Exocet already being too close to the ship.[12]

At 0637Z, as *Glamorgan*'s head turned through 185 and the ship heeled at about 14 degrees, the approaching Exocet clipped the top edge of the flight deck on the port side and ricocheted upward before

11. Inskip, *Ordeal by Exocet*, 150–51, 154.

12. Inskip, *Ordeal by Exocet*, 157–59. Inskip asserts that it went against ingrained practice in the Royal Navy at the time to order full (35 degree) rudder in either direction, as older steering engines had a tendency to jam beyond 30 degrees. As he was aware that this defect had been corrected and time was of the essence, the navigating officer's decision in this moment may well have prevented the Exocet from striking *Glamorgan*'s missile magazine.

detonating, blasting a 10-by-15-foot hole in the deck and a 5-by-4-foot hole in the galley floor on the level below. Debris from the missile, including the still-firing motor, penetrated the closed hangar door (which faced the port side) and collided with the armed and fueled Westland Wessex helicopter inside, destroying it and blowing out the hangar door in an enormous secondary explosion. The blast wave dismounted the loaded port Seacat launcher, throwing it into the flight deck netting, and also buckled the bulkhead separating the hangar from *Glamorgan*'s gas turbine room.[13] The explosions also destroyed about half the ship's breaker room, disabled three of the five generators, fractured the hangar fire main, shattered the sprinkler heads in the main missile magazine (and thereby flooded it), and caused significant damage to the ship's upperworks, resulting in a fire in the main communications office far away from the primary impact area when transmissions were attempted. Intense fires started immediately in the hangar and galley, producing thick, acrid smoke akin to that which caused such confusion aboard *Sheffield*. The flames quickly penetrated the gas turbine spaces through their uptakes and briefly forced their abandonment, but left the combined-propulsion *Glamorgan* with its low-power steam plant undamaged.[14]

Inskip's maneuver successfully diverted the Exocet away from the side of the ship (and the primary missile magazine), directing the blast obliquely along the deck. Nevertheless, *Glamorgan*'s damage was extensive. As the recall to action stations was belatedly sounded simultaneously with the missile's impact, the crew began picking themselves back up from wherever the blast had thrown them and returning to their duty stations. On the bridge, Commander Inskip ordered rudder amidships and a reduction in speed to 12 knots; he was reassured when the helm responded despite the explosion aft. He then sought to assess the damage, recalling, "As I opened the citadel air lock, the full extent of the fire was immediately apparent. Flames in excess of 100 ft high were erupting from the hangar, the

13. Freedman, *Official History*, 623–24; Inskip, *Ordeal by Exocet*, 161, 163.

14. Inskip, *Ordeal by Exocet*, 163–64; Woodward, *One Hundred Days*, 464–65.

port Seacat director was on fire and flames stretched halfway up the port waist. Nothing but smoke and flames could be seen aft of the Seacat director."[15]

Having left navigating in the hands of the officer of the watch, Inskip seized an unreeled hose and, despite lacking a nozzle, attacked the port waist flames in company with several junior ratings, with the intent of reaching the presumably endangered port Seacat launcher. These flames proved easy to extinguish despite the need to get close, and upon discovering that the launcher had been dismounted and was not in immediate danger, Inskip joined the battle against the fire in the hangar—narrowly avoiding falling into the hole blasted in the flight deck, which was obscured by the smoke and flames. Within the wreckage of the hangar, ammunition had begun cooking off, and most of those fighting the fire were hesitant to expose themselves to exploding rounds. Inskip carried this news back to the bridge, then retrieved a nearby diving mask and air tank before returning to help fight the hangar fire.[16]

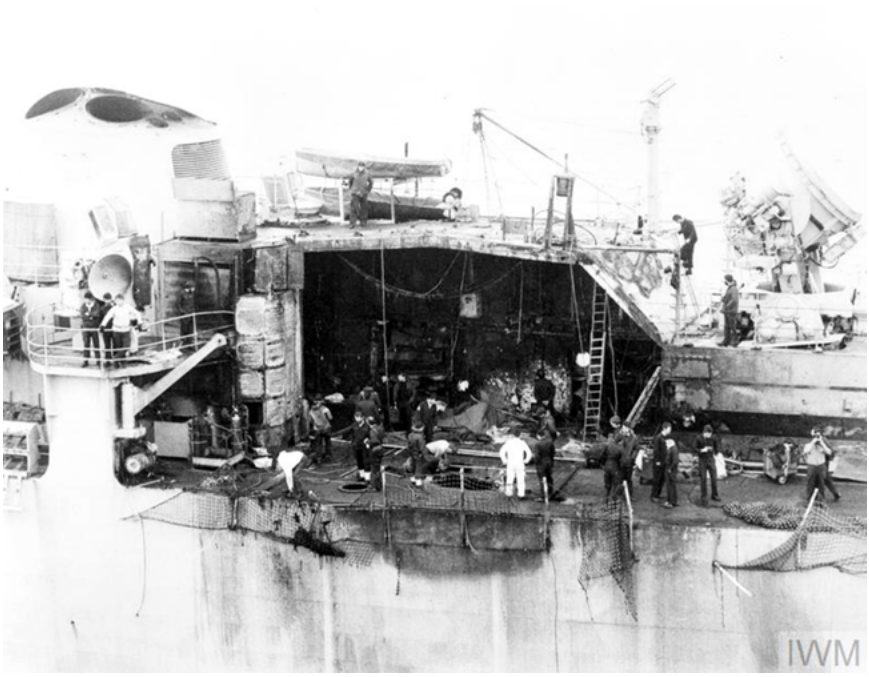
Eventually—this time with a nozzle on his hose—Inskip cleared a path through the flames to the remains of the helicopter rotorhead where it lay on the deck, providing a trace of cover from the exploding ammunition as well as spray access to all parts of the hangar. "My main concerns," Inskip later wrote, "were: 'Was the helicopter loaded with a Mark 11 depth charge? And if so, if it cooked off, would it blow me over the side? Would the HP [high pressure] air reservoir on the hangar bulkhead explode with similar effect? With all the firefighting water draining down the hole in the deck, giving the ship a significant list, how much longer could we pour water on this inferno?'"[17] Regardless of his worries, Inskip continued his efforts and was soon joined by additional hose teams. Together, they pushed the flames back enough to reach the hangar office, discovering to their surprise that the fractured hangar main had protected Aircraft Engineering Mechanician John Kelly, who was trapped with a broken

15. Inskip, *Ordeal by Exocet*, 174–75.

16. Inskip, *Ordeal by Exocet*, 174–75.

17. Inskip, *Ordeal by Exocet*, 175.

leg. Inskip continued forward, recording, "There was a mound of clothing at the forward end of the hangar office upon which I climbed . . . . I know what the mound of clothing really was but blanked it out of my mind. The only subject upon which I allowed myself to focus was the fire. Reflection would come later." By 0720Z, the hangar fire was contained.[18] At this stage, disobeying orders to withdraw and rest, the navigating officer continued aiding efforts to extinguish the fire. After being threatened with a court-martial, he eventually collapsed into bed exhausted, sore, and short of breath from smoke inhalation.[19]




Damage to *Glamorgan* from the Exocet attack that took place early on 12 June 1982. The hole in the flight deck is clearly visible, while the doorless hangar is charred from the explosion and intense fire inside. (Crown copyright reproduced under delegated authority from The Keeper of Public Records. Image: Imperial War Museum FKD 75)

18. Inskip, *Ordeal by Exocet*, 185.

19. Inskip, *Ordeal by Exocet*, 177–78.

As these efforts continued, water from both the firefighting efforts and the fractured hangar main poured through the hole into the galley. Inside, the large open area allowed an increasing volume of water to slosh across the deck, thereby exacerbating the ship's normal roll through the free-surface effect. This shifting weight dangerously reduced *Glamorgan*'s stability and exaggerated the expected list from firefighting water, placing the vessel into a state of loll—unstable or uncontained heel—that by 0758Z generated an average list of 12 degrees to port. Some of the draining water was dealt with through the simple act of diverting it over the side with available timber, and similar efforts at stabilization were made to shrink the available free surface in the galley. Meanwhile, *Glamorgan*'s starboard ballast tanks were flooded, which, by 0811Z, decreased the average list to 4 degrees.[20]

By 1054Z that same morning, the fires were out and portable pumps had eliminated the flooding.[21] As damage control efforts turned to cleanup and recovery of the dead, much of *Glamorgan*'s crew was in a state of shock as the significance of the last five hours finally hit them. "None of us had previous experience being hit by a missile," wrote Leading Marine Engineering Mechanic John "Taff" Callaghan. He added, "It is a most frightening and traumatic experience. We had very limited information—just the horrors presented before our eyes. We did not know how close the ship was to either blowing up or sinking. We had been up all night at action stations and were both physically and mentally exhausted. People did their best—they were, after all, human and not machines."[22] The attack killed 14 men (13 instantly, with one later succumbing to his wounds), and injured 14 through the effects of blast, shrapnel, burns, and smoke inhalation.[23] Nevertheless, the efforts of *Glamorgan*'s crew ensured that the destroyer was the first vessel to survive an Exocet hit, leading the Royal Naval Damage Control School to later produce

20. Inskip, *Ordeal by Exocet*, 178, 185.

21. Freedman, *Official History*, 624.

22. John "Taff" Callaghan quoted in Inskip, *Ordeal by Exocet*, 182.

23. Freedman, *Official History*, 624; Woodward, *One Hundred Days*, 464.

a poster of the ship captioned, "THE PRINCIPAL LESSON—Not easy, but it can be done. Could your ship do it?"[24]

## USS *Stark*

The U.S. Navy's own encounter with Exocet occurred during the Tanker War, part of the naval aspect of the Iran-Iraq War (1980–1988). While occasional attacks on shipping in the Arabian Gulf began as early as Iraq's initial invasion, these intensified and expanded significantly in 1984 and again in 1986, endangering all commercial shipping in the region. Iraqi anti-shipping attacks in particular, which used AM-39 Exocets, were generally indiscriminately conducted against any radar contacts in a designated area of the Arabian Gulf along the Iranian coast. Between September 1980 and May 1987, this repeatedly led to some of the 355 Iraqi anti-shipping sorties being made against ships ostensibly belonging to Iraq's allies, including several hits.[25] Nevertheless, when the U.S. Navy began escorting U.S.–flagged merchant ships through the Gulf in 1984, U.S. forces generally viewed Iran as the probable origin of any attacks, due primarily to the recent hostility between the two nations in the 1979 Iranian Revolution and subsequent 1979–81 Hostage Crisis.[26]

*Stark*, an *Oliver Hazard Perry*-class guided-missile frigate commanded by Captain Glenn R. Brindel, joined the Arabian Gulf escort efforts in February 1987.[27] Stark's crew was briefed that the greatest danger was likely to be accidental attack, and that their rules of engagement were to warn *any* approaching aircraft that appeared to be flying an attack profile, with the use of force authorized only if the contact failed to respond. Despite these standing orders, mul-

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24. Inskip, *Ordeal by Exocet*, 185.

25. Joseph Frederick Bouchard, "Use of Naval Force in Crises: A Theory of Stratified Crisis Interaction, Volume III" (PhD diss., Stanford University, 1988), 939–40.

26. Bouchard, "Use of Naval Force in Crises," 940.

27. J. B. Noll, "Command History for USS *Stark* (FFG-31) for 1987," 15 November 1988, box 3, AR/746, Command Operations Reports—Unclassified, Archives Branch (AB), Naval History and Heritage Command (NHHC), Washington Navy Yard (hereafter cited as Stark COR).

tiple Iraqi anti-shipping flights near other U.S. warships provoked no response in the early months of 1987, as their known attack zone was outside the Navy's patrol areas, and crews continued to regard them as allies.[28]

On 17 May 1987, *Stark* began operating as a radar picket ship in the middle of the Arabian Gulf, roughly 85 miles northeast of Bahrain. Around 2000 local time, a U.S. Air Force airborne warning and control system (AWACS) aircraft notified the ship that it had detected an Iraqi aircraft on a probable anti-shipping mission closing in from 200 miles to the north of *Stark*'s position. The ship's own air search radar acquired the aircraft at a range of 70 miles, but personnel in *Stark*'s combat information center (CIC) perceived the speed and approach of the aircraft—a secretly modified Falcon 50 transport rather than the usual Mirage F1 fighter—to be atypical for an attacker despite the AWACS warning.[29] This, combined with the fact that the approaching aircraft initially appeared set to pass by *Stark* at a point no closer than 11 miles, meant that the crew was unconcerned. Thus, an initial request within CIC to transmit a warning to the aircraft at a range of about 46 miles was denied by the tactical action officer (TAO).[30]

At 2105, while about 35 miles away, the Iraqi Falcon 50 turned directly toward *Stark*. At that moment in *Stark*'s CIC, both the weapons control officer station and the Close-In Weapon System operator position were vacant. Additionally, the executive officer, Lieutenant Commander Raymond J. Gajan Jr., had just entered the room on an unrelated errand. All of these factors had the effect of degrading *Stark*'s CIC efficiency and reaction time, especially when combined with the crew's relaxed posture. At 2107, the TAO noticed the Iraqi

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28. Bouchard, "Use of Naval Force in Crises," 942–43; Jeffrey Levinson and Randy Edwards, *Missile Inbound: The Attack on the* Stark *in the Persian Gulf* (Naval Institute Press, 1997), 10–13; Grant Sharp, "Formal Investigation into the Circumstances Surrounding the Attack on the USS *Stark* (FFG 31) on 17 May 1987," Report by Rear Admiral Grant Sharp to Commander in Chief, U.S. Central Command, 12 June 1987 (sanitized version), 6 (hereafter cited as Sharp Report).

29. Stark COR, 8; Williamson Murray and Kevin Woods, *The Iran-Iraq War: A Strategic History* (Cambridge University Press, 2014), 306–8.

30. Sharp Report, 12–13.

aircraft's change in course and belatedly gave the order to call the captain and send a radio identification warning. Simultaneously, the Falcon 50 launched an AM-39 Exocet at *Stark*, followed less than one minute later by a second missile, at a range of 22 and 15 miles, respectively.[31]

Fired at such close range, the radars of both Exocets quickly activated and locked on to *Stark*; these missiles were detected aboard the ship but misidentified as a Mirage F1 fire-control radar, and no immediate alarm was raised. The first missile launch was, however, witnessed by the forward lookout as a bright light that was initially thought to be a surface contact. That missile hit *Stark* on the port side at the second deck level (about six feet above the waterline) just aft of the pilothouse at 2109, failing to explode but rupturing the port fire main and starting a large propellant fire in the berthing compartments before continuing out the starboard side. About half a minute later, as the crew was ordered to general quarters, the second Exocet struck the ship in nearly the same location. This time, the warhead detonated just inside the hull, together with its predecessor creating a 10-by-15-foot hole and throwing shrapnel down the port passageway that, with the blast wave, jammed hatches, extensively damaged electrical wiring, and knocked out power to the CIC. The second missile's considerable amount of unspent propellant added to the fire started by the first Exocet (estimated at 600 pounds of propellant total), quickly stoking an intense blaze of 1,400–1,500 degrees Fahrenheit within about a minute and producing the characteristic acrid black smoke, which rapidly propagated through the forward half of the ship.[32]

In the immediate aftermath of the missile hits, Aviation Antisubmarine Warfare Operator Second Class Dale Curran, a petty officer belonging to the helicopter detachment aboard *Stark*, was forced by

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31. Bouchard, "Use of Naval Force in Crises," 943–44; Sharp Report, 11–12.

32. Levinson and Edwards, *Missile Inbound*, 17–19; U.S. Congress, House Committee on Armed Services, *Report on the Staff Investigation into the Iraqi Attack on the USS* Stark (Government Printing Office, 1987), 14–15, 25–26 (hereafter cited as "HASC Report"); Michael W. Tooker, Dale W. Curran, and Marvin L. Wilson Jr., interview by Malcolm Muir, 26 January 1988, recording, 5:30, OH/5781, AB, NHHC (hereafter cited as Tooker); Sharp Report, 25–26.

the flames to move from where he had been resting in the berthing spaces to the forecastle. He recalled, "For the first hour, hour and a half. . . we couldn't do anything. We broke out all the OBAs and breathing gear and just waited."[33] While operating pressure in the fire main was restored to the aft section of *Stark* by isolating the break at 2138, this action cut off the area forward of the damage, including the missile magazine, from all firefighting water. To make matters worse, *Stark* continued to forge ahead at 15 knots (on its pre-attack course bearing 300) to avoid Iranian interference until 2303, preventing portable pumps from generating suction.[34]

*Stark*'s leadership initially established control of all firefighting and a casualty treatment station on the flight deck and in the hangar, while Captain Brindel remained on the flame-licked bridge until the

Port quarter view of USS *Stark* (FFG-31) on fire and listing to port on 18 May 1987 after being struck by two Iraqi Exocet missiles the previous evening. Note the sailors gathered on the flight deck where firefighting was being coordinated. (NARA, 6417926)

33. Tooker, 09:30.

34. HASC Stark Report, 12; Sharp Report, 27.

spread of the fire forced him aft to the flight deck as well. Once aft, Lieutenant Commander Gajan reestablished external communications using the ship's embarked helicopter detachment and began collecting additional firefighting equipment, including and especially OBA canisters, from elsewhere in the ship and from resources in Bahrain. Extra oxygen was critical as the dense smoke continued to spread and obstructed access to two of *Stark*'s repair lockers, including Repair Locker 2 in the forward area of the ship, which had lost its senior leaders in the initial missile strike. *Stark*'s damage control central was also badly impacted by the smoke, making the flight deck and hangar effectively the main coordination center for efforts to save the ship.[35]

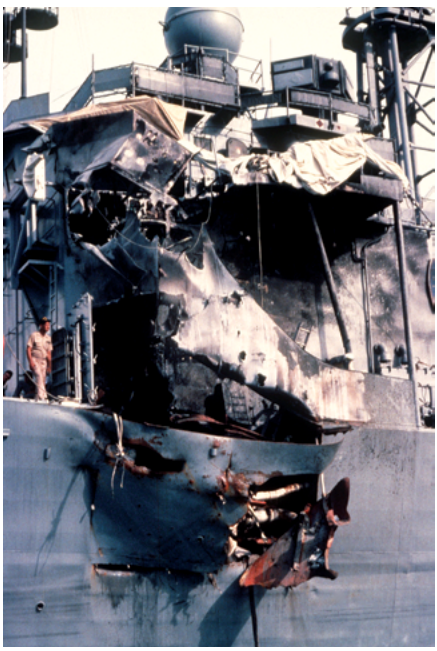
The most immediate concern for *Stark*'s crew was preventing the flames from entering or excessively heating the missile magazine forward or the 76-millimeter gun magazine amidships. While much of the gun ammunition was collected aft and thrown overboard, the missile magazine was a particularly serious problem as it could not be flooded, despite Brindel's orders, thanks to the total loss of water pressure in that section of the ship. At first, this issue was dealt with by running long hoses across the O-2 (highest) level over the fire; these were used to spray into the magazine, where paint soon began to peel off the bulkheads from the heat. "Once we got pressure, I sat right on that deck edge where the missile had hit for about three hours, and the only time I would come out was to change an OBA canister," recalled Curran, adding, "every five minutes or so you'd have to shoot the water where you were sitting because it would get so hot."[36] But as the blaze spread and isolated the forward section of the ship after the first hours, these efforts threatened to become futile. Lieutenant Basil E. Moncrief Jr., who took charge of Curran's group on the forecastle, told Captain Brindel around 2300 that the magazine would likely explode. He recalled, "We had no intention of abandoning the forecastle. In fact, it wasn't mentioned by a single

35. Levinson and Edwards, *Missile Inbound*, 19–23; HASC Report, 25–26; Sharp Report, 26–27.

36. Tooker, 22:30.

man up there even though we were all convinced it would happen."[37] Fortunately, around 2330, a local salvage tug joined company with *Stark* and began spraying water onto the missile launcher and directly into the missile magazine, which by this time had grown so hot that the water initially flashed to steam. While the magazine was successfully flooded soon after (two to three hours postattack), these efforts continued until the area had finally been cooled to an acceptable level around 1000 on the morning of 18 May, nearly 13 hours after the attack.[38]

As with *Glamorgan*, the large amounts of firefighting water (and initially the broken fire main) caused *Stark* to list, reaching an average of 16 degrees by 0400 on 18 May. A list of this magnitude submerged the lower portion of the hole blasted by the Exocets, flooding part of the berthing spaces affected by the impact. As Condition Zebra had been set by 2120 the previous evening, this flooding fortunately did not progress the list in and of itself. However, continued firefighting efforts threatened to submerge more of the damage and potentially sink *Stark*. In response, Lieutenant Commander Gajan ordered holes cut in the bulkheads above the main deck to allow trapped water currently above sea level to escape.



External damage to the port side of *Stark* from the two Iraqi Exocet hits and the ensuing fire. (NARA, 6443167)

37. Basil E. Moncrief Jr. affidavit, Exhibit 76 to the *Record of Proceedings of a Formal Investigation into the Circumstances Surrounding the Attack on the USS* Stark *(FFG 31) on 17 May 1987,* quoted in Levinson and Edwards, *Missile Inbound*, 17, 33–34; HASC Report, 26; Sharp Report, 27–30; Tooker, 11:30.

38. Levinson and Edwards, *Missile Inbound*, 33–34; Tooker, 21:30.

Over time, this decision, combined with pumping efforts, gradually restored *Stark*'s stability, reducing the list to 10 degrees by 1520 on 18 May, and 3 to 5 degrees three hours later.[39]

Efforts to suppress *Stark*'s fires ultimately continued for over 18 hours, consuming all the ship's OBA canisters (of which *Stark* already carried double the normal inventory), and many of those supplied by other Navy vessels that came to the frigate's aid. Part of the difficulty in dealing with the fires lay with the loss of senior members of the forward repair locker team in the initial impact, which led to a lack of ready knowledge as to how best to tackle a missile fire. The intense heat of the burning propellant additionally created an oven effect in the spaces above the initial fire—including CIC and the bridge—that eventually reached ignition temperatures for the material inside.[40] Damaged and dangling electrical cables, as well as heat-cracked and -buckled bulkheads and decks, also inhibited both the initial evacuation and subsequent efforts to reach the source of the fire, leading to repeated instances of reignition until around 1700 on 18 May.[41] By the time the fires were out, *Stark*'s crew was exhausted—and likely could not have saved their ship had it not been for the provision of fresh rescue and assistance teams from *Waddell* (DDG-24) and *Conyngham* (DDG-17), which allowed damage control to proceed in shifts.[42] Despite these heroic efforts, 37 of the crew were killed as a result of the Exocet impacts, which included a combination of blast injuries, burns, and smoke inhalation and asphyxia. An additional 21 were injured.[43]

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39. Levinson and Edwards, *Missile Inbound*, 36; Sharp Report, 28.

40. Levinson and Edwards, *Missile Inbound*, 17, 23–24; HASC Report, 25–26.

41. Levinson and Edwards, *Missile Inbound*, 36; Sharp Report, 29.

42. Sharp Report, 28.

43. Arthur M. Smith, "Can We Effectively Control Human Costs during War at Sea?," *Naval War College Review* 45, no. 1 (1992), 15.

## Conclusion

Despite predictions in the aftermath of the Falklands conflict that American warships of comparable strength would weather Exocet attacks better than their British counterparts, the experiences of both British and American victims of the missile were broadly similar.[44] Among all three cases of *Sheffield, Glamorgan*, and *Stark*, the pre-attack posture of a ship's crew (and therefore the ability to take defensive action) before missile impact had a clear effect on the severity and extent of the resulting damage. But equally significant was the crew's readiness to leap into action to fight fires, treat casualties, and mitigate flooding. In these efforts, perhaps the greatest obstacle to success was the thick, acrid black smoke that the initial propellant fires produced, which was amplified by burning fuel, plastic, and other toxic-gas-producing materials. This smoke rapidly overcame *Sheffield*'s ability to coordinate a response, and while *Glamorgan* fared better, neither ship was later judged to have an adequate supply of portable oxygen for these efforts. *Stark* faced a similar dilemma (and exhausted its collected OBA canisters by 0100 on 18 May) but had the benefit of additional supplies from multiple friendly ships and nearby Bahrain. Despite damage control training judged by subsequent investigations to have been adequate if not superior, *Stark*'s crew needed all of that additional help to save their ship.[45] While no two crises are ever the same, all three of these missile impact cases nevertheless demonstrate the continuing criticality of effective damage control training and crew coordination—as well as the danger of complacency in a combat zone—to meeting the threat posed by modern naval weapons.

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44. Norman Friedman, "Surface Combatant Lessons" in *Military Lessons of the Falkland Islands War: Views from the United States*, ed. Bruce Watson and Peter Dunn (Westview Press, 1984), 32–33.

45. Sharp Report, 28–29; HASC Report, 26.

# "Nobody Does it Better": *Samuel B. Roberts* (FFG-58) in the Arabian Gulf (14 April 1988)[1]

John E. Fahey

On 17 May 1987, Commander Paul X. Rinn received terrible news. USS *Stark* (FFG-31) had just been hit by two Exocet missiles in the Arabian Gulf, killing or wounding dozens of sailors. The frigate burned for hours, requiring so much water that firefighters almost sank their own ship.[2] As captain of the recently launched USS *Samuel B. Roberts* (FFG-58), Rinn commanded the same class of ship with the same capabilities and vulnerabilities as *Stark*.[3] Rinn had attended

1. Paul Rinn, "Command in the Spotlight," *Newport Navalog*, 18 December 1987, 8. Throughout this chapter, I use the ranks of officers and enlisted personnel in April 1988.

2. Harold Lee Wise, *Inside the Danger Zone: The U.S. Military in the Persian Gulf, 1987–1988* (Naval Institute Press, 2007), 26–41.

3. Both ships were *Oliver Hazard Perry*-class frigates, though *Samuel B. Roberts* was a slightly larger variant. Lee Wise, *Inside the Danger Zone*, 165. *Roberts* displaced 4,100 tons and was 453 feet long with a compliment of 219 crewmen. Designed as a cost-effective escort vessel, it was armed with an Mk 13 Guided Missile Launcher, a 76-millimeter Mk 75 rapid fire gun, 6 Mk 32 torpedo tubes, an Mk 15 Phalanx Close-in Weapon System, a few .50-caliber machine guns, and 2 Sikorsky SH-60B Seahawk helicopters. Mark L. Evans, "*Samuel B. Roberts* III (FFG-58), 1986–2015," Naval History and Heritage Command (NHHC), 4 April 2019, https://www.history.navy.mil/research/histories/ship-histories/danfs/s/samuel-b--roberts--ffg-58--iii.html.

the Naval War College in the same class as *Stark's* commander and could easily imagine himself in a similar situation. After hearing the news of the attack, Rinn sat silently on *Roberts*' bridge for half an hour. When his executive officer finally approached him to ask if he was okay, Rinn replied, "No, I'm not. I'm sitting here thinking, 'What twenty-nine guys would I give up on this ship that I'd ever be able to sleep again?'"[4] *Stark* loomed large over *Roberts* for the next several months. Crewmen constantly asked Rinn, "That's not going to happen here, is it captain? You're not going to let that happen to us."[5]

Eleven months later, Rinn and the crew of *Roberts* found themselves in a similar situation to *Stark*. On 14 April 1988, the frigate struck an Iranian mine, which punched a 22-foot hole in the hull, flooded two compartments, cracked the superstructure, sparked a raging fire deep in the engineering spaces, knocked out the ship's electrical grid, Halon fire suppression system, assorted communications and control systems, and a fire main, and worst of all, snapped *Roberts*' keel.[6] A broken keel is generally considered a death blow, especially when combined with fire and flooding.[7] Fortunately, Commander Rinn and his crew had learned from *Stark* and were prepared. Despite many injuries and some close calls, *Roberts* did not lose a single sailor or the ship itself. Driven by a collective quest for excellence and the determination to avoid a similar disaster as *Stark,* Commander Rinn, Damage Control Assistant Lieutenant Eric Sorensen, and the rest of the crew ensured that the ship was ready.

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4. Bradley Peniston, *No Higher Honor: Saving the USS* Samuel B. Roberts *in the Persian Gulf* (Naval Institute Press, 2006), 62–63. Twenty-nine of *Stark*'s sailors were killed in the initial missile strike. An additional eight died from their injuries later.

5. Paul Rinn, "Saving *Samuel B. Roberts* FFG 58: Lessons in Leadership," Surface Navy Association West Coast Symposium, San Diego, CA, 26 August 2010, 22:02, https://www.youtube.com/watch?v=N8E-67eRlkY.

6. Naval Sea Systems Command (NAVSEA), "Final Report, Survivability Review Group Report on USS *Samuel B. Roberts* (FFG-58) Damage Analysis," October 1988, 3-1–3-24.

7. Paul Rinn frequently explained that the ship should have sunk within an hour. For example, see Paul Rinn and Kirk Lippold, "Fight the Ship: Leadership & Damage Control," United States Naval Academy Museum, Annapolis, MD, 22 August 2014, 6:20, https://www.youtube.com/watch?v=un01zw62n70.

Shortly after the mine incident, Rinn explained that exceptional training, outstanding leadership at all levels, and raw courage saved his ship.[8]

## Training

A crew like *Roberts* is no accident. Commander Rinn was designated as prospective commanding officer in 1984, around the same time Bath Iron Works laid *Roberts*' keel. As the crew was gradually assigned to the ship, Rinn ensured that they "trained in just about every area as a team."[9] Chief Engineer Lieutenant Gordan Van Hook arrived at *Roberts* in the summer of 1985, as a shipbuilder's strike stopped progress on the frigate. He later recalled, "The strike was the best thing that ever happened to the ship. . . We were delayed by five or six months. . . and guys kept arriving. So we had to think of things for them to do. We'd take them over to different ships. . . still under construction. You could walk around the spaces and see what was above you and below you. We did all sorts of scavenger hunts and games, and lots of training and quizzing. It got us off to a great start."[10] This innovative training gave the incoming sailors an intimate understanding of the layout and workings of their ship, which would prove priceless.

Commander Rinn selected Lieutenant Sorensen as damage control assistant and encouraged him to make damage control a major focus of shipboard life.[11] Unusually senior for the assignment, So-

8. Quoted in Kenneth A. Heine, "'This is no Drill!' Saving the 'Sammy B.,'" *Surface Warfare*, July/August 1988, 4.

9. "Telcon Interview with CDR Paul X. Rinn PCO USS *Samuel B. Roberts* (FFG-58) at Bath Maine," 24 January 1986, *Samuel B. Roberts* (FFG-58) III, box 304, folder 3, Ships History Post 2001, Archives Branch (AB), NHHC, Washington Navy Yard.

10. Bradley Peniston, "All Hell Broke Loose: An Interview with Captain Gordan Van Hook, U.S. Navy (Retired)," *Proceedings* 139, no. 4 (2013): 71, https://www.usni.org/magazines/proceedings/2013/april/all-hell-broke-loose.

11. Joseph Glass, "Damage Control: Adopting an Unwanted Stepchild," *Proceedings* 114, no. 12 (1988): 126, https://www.usni.org/magazines/proceedings/1988/december/damage-control-adopting-unwanted-stepchild; Thomas Cutler, "'Don't Give Up the Ship,'—Paul X. Rinn," *Naval History Magazine*, April 2023, 62, https://www.usni.org/magazines/naval-history-magazine/2023/april/dont-give-ship-paul-x-rinn.

rensen was initially annoyed but quickly went above and beyond his duties, ensuring the ship had extra damage control supplies, and conducting uncommonly frequent damage control drills.[12] Finding the damage control manuals boring and overly technical, Sorensen wrote a brief and useable manual specific to the ship. The resultant *USS* Samuel B. Roberts *Damage Control Booklet* organized damage control into ten simple "commandments," like "thou shalt keep the ship watertight," "thou shalt know the use of thy damage control equipment and keep it holy," and "thou shalt keep cool; thou shalt not give up our ship," and explained how to follow the commandments.[13] Sailors kept copies of the booklet with them and were regularly quizzed on it. Rinn also insisted on cross-training sailors to ensure interoperability in catastrophic situations.[14]

In addition to training his sailors and empowering his subordinate leaders, Rinn sought to instill pride in the ship by teaching his crew about their ship's history. Coxswain Samuel Booker Roberts Jr. posthumously received a Navy Cross after using a Higgins boat to draw fire away from Marines at Guadalcanal in 1942.[15] His namesake, *Samuel B. Roberts* (DE-413), was part of "Taffy-3," a small group of destroyers, destroyer escorts, and escort carriers at the Battle off Samar (25 October 1944).[16] Led by Lieutenant Commander Robert Copeland, "*Sammy B.*" engaged multiple Japanese cruisers before being sunk by a battleship.[17] Copeland wrote in an after-action report that he knew of "no higher honor" than serving with his sailors.[18]

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12. Cutler, "Don't Give Up the Ship," 62; Peniston, *No Higher Honor*, 32–34.

13. Peniston, *No Higher Honor*, 33–38. This is now a common practice aboard U.S. Navy ships.

14. Rinn and Lippold, "Fight the Ship."

15. Guy J. Nasuti and Robert J. Cressman, "*Samuel B. Roberts I* (DE-413)," NHHC, 17 June 2019, https://www.history.navy.mil/content/history/nhhc/research/histories/ship-histories/danfs/s/samuel-b-roberts-de-413-i.html.

16. For an overview of the battle, see James Hornfischer, *The Last Stand of the Tin Can Sailors: The Extraordinary World War II Story of the U.S. Navy's Finest Hour* (Bantam Dell, 2004).

17. Nasuti and Cressman, "*Samuel B. Roberts I.*"

18. "USS *Samuel B. Roberts* (FFG-58)," NHHC, 18 June 2024, https://www.history.navy.mil/browse-by-topic/ships/modern-ships/uss-samuel-b--roberts--ffg-58-.html.

Commander Rinn used the ship's heritage to encourage his sailors to be their best. He corresponded with Copeland's widow and commissioned a bronze plaque for FFG-58 bearing the names of the crew of DE-413. In 1986, Rinn told an interviewer, "The crew knows about the history of the name. They feel very serious about the fact that they're walking in the footsteps of an awful lot of brave men. . . . The byword around here is 'the Spirit of Sammy B.' That's not mine, by the way, that's the crew."[19] Around 30 DE-413 veterans attended FFG-58's commissioning on 12 April 1986. Rinn also ensured that copies of Copeland's memoir were available to the crew and used "No Higher Honor" as the ship's motto.[20]

Commander Paul X. Rinn speaks during *Samuel B. Roberts*' (FFG-58) commissioning ceremony on 12 April 1986. (NARA, 6410139)

19. "Telcon Interview."

20. Peniston, *No Higher Honor*, 18, 47.

After commissioning, Rinn drove his team hard. *Roberts* spent five weeks at Guantanamo Bay for shakedown training in June and July, and it paid big dividends. The command history notes that in the first six months after commissioning, the ship had earned battle efficiency awards for "ASUW, AAW, Engineering E, the Deck Seamanship/Navigation award, DC, and the Electronic Warfare award."[21] Rinn, Sorensen, and the other officers constantly tested the crew on damage control procedures and held a lost power drill every month, even though the Navy standard at the time was just once a year.[22] Fireman Mike Tilly recalled that damage control drills never ended, stating, "When you were in the duty section, the rest of the guys were out having a good time, you were back on the ship running drills. If we got underway, as soon as we secured from sea and anchor detail, 'Set General Quarters.' It was constant, just all the time."[23]

Events on the other side of the world gave *Roberts*' already intense training regimen urgency. Iran and Iraq had been at war since 1980. For the first years of the war, Iraq occasionally attacked Iran's oil tankers in the Arabian Gulf. In 1984, both sides greatly expanded their war on tankers and started to target neutral ships. In 1987, the United States agreed to help Kuwait with Operation Earnest Will, a series of convoy escort missions. On 17 May 1987, shortly before American warships began escorting tankers, an Iraqi jet hit *Stark* with two Exocet missiles, setting the frigate on fire and killing 37 sailors.[24] Lieutenant Van Hook remarked on the change of attitude onboard *Roberts*. "This is when the mass conflagration training really took off. . . . I can remember going at it during that time with

21. Commanding Officer USS *Samuel B. Roberts* (FFG-58), "USS *Samuel B. Roberts* (FFG-58) Command History 1986," box 238, folder 2, AR/746, Command Operation Reports, Archives Branch (AB), NHHC, 1987, 1–2. ASUW, AAW, and DC are the respective acronyms for antisurface warfare, anti-air warfare, and damage control.

22. Rinn and Lippold, "Fight the Ship."

23. David Larter, "Saving Sammy B: A frigate's heroic legacy," *Military Times*, 22 May 2015, https://www.militarytimes.com/news/your-military/2015/05/22/saving-sammy-b-a-frigate-s-heroic-legacy/.

24. Peniston, *No Higher Honor*, 59–62.

a lot more sense of 'Hey, this could really happen to us.'"[25] The Navy increased its material preparedness as well. *Oliver Hazard Perry*-class frigates typically had been allocated 18 oxygen breathing apparatuses (OBAs). After the *Stark* incident, the Navy tripled the number of OBAs on frigates to 54 and added additional firefighting tools, while *Roberts*' crew hoarded additional supplies, including extra P-250 gas-powered portable pumps and timber.[26]

This redoubled intensity showed as *Roberts* headed back to Guantanamo Bay for five weeks of refresher training with the fleet training group (FTG) in June 1987. Training concluded with a mass conflagration scenario, based on the experience of *Stark*.[27] Trainers gave *Roberts* a brutal rundown, testing them with a variety of shutdown systems and simulated casualties.[28] *Surface Warfare Magazine* reported that *Roberts* "passed all tests and the unanimous decision from the FTG instructors was: The crew saved the ship."[29]

## To the Gulf

Commander Rinn heard informally in June that *Roberts* would be heading to the Arabian Gulf soon and prepared accordingly.[30] Lieutenant Sorensen rotated off the ship before deployment, but explained later that the crew went beyond typical levels of training. "They knew the ship very well; they knew the geography. All of them had the major subdivision bulkheads memorized all the way from the bow to the stern."[31] Well prepared, the crew was also committed to their ship. Rinn wrote proudly before deploying that the crew had "an attitude that the fine lady they operate at sea is a very im-

25. Peniston, "All Hell Broke Loose," 71.

26. John Lyons, "Could a Small Crew Have Saved the *Stark*—or the *Samuel B. Roberts*?," *Proceedings* 124, no. 10 (1998): 86, https://www.usni.org/magazines/proceedings/1998/october/could-small-crew-have-saved-stark-or-samuel-b-roberts; Larter, "Saving Sammy B."

27. Gary Smith, "Mass Conflagration Training: Battling the Big Blaze," *Surface Warfare*, Nov/Dec 1987, 7–9; Peniston, *No Higher Honor*, 63.

28. Peniston, *No Higher Honor*, 63–65.

29. Smith, "Mass Conflagration Training," 7–9.

30. Peniston, *No Higher Honor*, 68–69.

31. Rinn and Lippold, "Fight the Ship."

portant part of their lives and they give every evolution that little extra effort." He credited this attitude in part to the ship's heritage. Veterans of DE-413 were "frequent visitors to *Samuel B. Roberts* and remind today's members of the crew about the long-standing line of blue coats who have proudly served on ships whose name has transcended many generations."[32]

*Roberts* left Newport, Rhode Island, on 11 January 1988 to join Rear Admiral Anthony Less's Middle East Task Force.[33] On the way to the Gulf, the crew visited cathedrals in Spain and saw debris from the Arab-Israeli War as it passed through the Suez Canal.[34] According to Commander Rinn, "frequent general quarters, fire drills and no notice weapons firings tuned our skills to a fine edge" on the way to the Gulf.[35]

Assigned to Operation Earnest Will, *Samuel B. Roberts* spent the next two months escorting convoys in a crowded operating environment. Iraqi jets were still active in the area, while Iranian patrol boats, frigates, and mine layers attacked tankers passing through the Arabian Gulf. *Roberts* had to protect tankers, as well as subdue Iranian naval activity in the region, while maintaining American neutrality. This led to intense sparring with the Iranians, as Rinn used his ship to chase Iranian vessels away from civilian vessels.[36] Rinn wrote home from the Gulf and explained that time "has been a mixture of excitement and boredom with frequent periods of high order tension thrown in to keep the adrenalin flowing."[37] Despite convoy duty, *Roberts* maintained incessant damage control drills—a

32. Rinn, "Command in the Spotlight," 8.

33. Commanding Officer, USS *Samuel B. Roberts* (FFG-58), "USS *Samuel B. Roberts* (FFG-58) Command History 1988," box 262, folder 9, AR/746, Command Operation Report, AB, NHHC, 1989.

34. David Richard Robinson, interview by Dudley W. Dudley, *David Richard Robinson Collection,* Library of Congress, 2001, https://www.loc.gov/item/afc2001001.75999/.

35. "Familygram, U.S.S. *Samuel B. Roberts*," 1988, *Samuel B. Roberts* (FFG-58) III, box 304, folder 1, Ships History Post 2001, AB, NHHC.

36. Rinn and Lippold, "Fight the Ship."

37. "Familygram, *Samuel B. Roberts*," 1988.

drill for every watch, meaning that on-duty crewmen practiced damage control every four hours.[38]

On 14 April 1988, *Roberts* had just finished its 14th convoy operation and was headed to refuel from oiler *San Jose* (AFS-7). At 1639, watchman Boatswain's Mate Bobby F. Gibson spotted three mines in front of *Roberts*.[39] Lieutenant Robert Firehammer had the conn and immediately stopped the ship 55 miles northeast of Qatar.[40] Rinn ran to the bridge and took command, only to see mines, recently laid by Iran, between 450 and 800 meters away.[41] Rinn set Condition Zebra and had his sailors take their battle stations as quietly as possible for fear of setting off a mine.[42] He then called the Middle East Task Force, which advised him to launch *Robert's* helicopter to search for mines.[43] As the crew got to its battle stations, Gas Turbine System Technician (Mechanical) Chief Petty Officer David Walker ordered sailors in the engine room and auxiliary machinery rooms (AMR) out of the lower levels.[44] As the crew prepared for action, Commander Rinn used the ship's auxiliary propulsion units to back up into *Roberts*' wake, telling himself, "I know I'm safe if I stay in my wake."[45] The minutes passed slowly as the ship backed up.

At 1649, *Samuel B. Roberts* struck a submerged M-08/39 mine, loaded with the equivalent of 253 pounds of TNT.[46] The M-08/39 was

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38. Peniston, *No Higher Honor*, 103.

39. Rinn, "Saving *Samuel B. Roberts*."

40. USS *Samuel B. Roberts* Deck Log, 14 April 1988, box 113, folder 9, AB, NHHC; NAVSEA, "Final Report," 3-1; Evans, "*Samuel B. Roberts* III."

41. Rinn, "Saving *Samuel B. Roberts*"; NAVSEA, "Final Report," 3-1–3-2.

42. Peniston, *No Higher Honor,* 117–18. During Condition Zebra, sailors close all watertight doors, making the ship as compartmentalized as possible to minimize the spread of fire or flood.

43. Middle East Task Force also told Rinn to not get closer than 1600 meters to any mine. When recounting the story Rinn liked to sarcastically remark, that "was very helpful" advice. Peniston, *No Higher Honor*, 119; Rinn, "Saving *Samuel B. Roberts*."

44. NAVSEA, "Final Report," 3-2; Peniston, *No Higher Honor*, 121.

45. Chuck Mussi, "'To See the Dawn,' The Night-long Battle to Save USS *Roberts*," *All Hands: Magazine of the U.S. Navy*, August 1988, 5.

46. Peniston, *No Higher Honor*, 123; "Damage Control Measures Taken Onboard USS *Samuel B. Roberts*," 21 April 1988, transcript, box 304, folder 1, AB, NHHC.

contact activated, meaning that it exploded directly against *Roberts*' one-half-inch-thick steel hull at frame 276. The explosion snapped the keel and cracked parts of the superstructure, leaving the ship dependent on its main deck to keep it from breaking apart.[47] In addition, the mine blew a 22-foot-wide hole in the bottom of the ship in the main engine room (MER), which flooded within 15 seconds. The adjacent AMR 3 filled with water in a few minutes. The blast broke fuel tanks and knocked the ship's two gas turbines off their mounts and set them on fire. The explosion then moved into the stack and shot a fireball 150 feet into the air, raining flaming insulation onto the ship's superstructure and flight deck.[48] Once the blast had subsided, fire and flooding continued to disable various systems.[49] Within a few minutes, much of the ship's power was out, as were the communication system, potable water system, firefighting pumps, and aqueous film forming foam (AFFF) pumps.[50]

*Samuel B. Roberts*' main engine room after the mine blast, 1988. (NARA, 6430268)

47. NAVSEA, "Final Report," 3-14.

48. NAVSEA, "Final Report," 3-2–3-3.

49. The blast took around a second to pass through the ship. NAVSEA, "Final Report," 3-17.

50. NAVSEA, "Final Report," 3-3–3-4.

The mine lifted parts of the ship 10 feet vertically. Mercifully, no crewmen were killed in the explosion, thanks in part to Chief Walker's earlier evacuation of the lower engine spaces.[51] Still, everyone onboard was jostled, and some suffered broken bones or burns. Seaman Gibson was tossed into the air and injured his back.[52] Lieutenant Robert Chambers told a reporter that "I was on the bridge. A big rush of air just knocked us over. It was as if someone were pulling a rug out from under us."[53] This impact broke Commander Rinn's foot, which he would endure throughout the day.[54] Most seriously, Chief Alex Perez was knocked off a catwalk in the MER and suffered three broken vertebrae and second-degree burns before being trapped under a grating in oily water. He eventually swam 12 feet underwater to an open grating and rescue.[55]

By 1650, Rinn and the crew of *Samuel B. Roberts* faced one of the most overwhelming damage control problems in American naval history. Keel broken, the frigate was burning, sinking, and lacking both power and its fire suppression systems.[56] MER and AMR 3 filled with water within minutes, and *Roberts* would likely sink if another compartment flooded.[57] Dozens of crewmembers were burned or injured, and an Iranian frigate and aircraft lurked nearby. Despite this, Rinn and his crew would save their ship, displaying the effects of well-honed training, inspired leadership, and incredible courage.

## The First Ten Minutes (1650–1659)

Immediately after the mine hit, the crew struggled to understand and respond to what had happened. Their first instinct, honed

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51. Robinson, interview; Peniston, *No Higher Honor*, 121.

52. NAVSEA, "Final Report," 3-2. Thickness of hull from Peniston, *No Higher Honor*, 121.

53. Colin Sargent, "Made in Maine: Legend of the Roberts," *Portland Monthly*, November 1988, 14–15.

54. Rinn, "Saving *Samuel B. Roberts*."

55. Peniston, *No Higher Honor,* 129–30, 139–40; Hein, "This is No Drill," 4.

56. NAVSEA, "Final Report," 3-2–3-3.

57. Dolbow, "No Higher Honor"; Peniston, *No Higher Honor*, 40; Rinn, "Saving *Samuel B. Roberts*."

through incessant training, was to repair the damage. Engineman Fernando Cruz described his reaction, stating, "Of course, initially, everyone was in shock, we couldn't quite believe what we saw. But a few seconds later, the ball was rolling. Hoses were getting [unrolled], water was being provided, and plans were being formulated to fight the fires as best we could."[58] Gunner's Mate Second Class Robert Clark was on the main deck when the mine hit. He told an interviewer that "all we could see when we looked back was a wall of flames and a lot of smoke. . . . First thing I did was I dropped my camera and a couple of us ran back here and started setting up hoses and grabbing OBAs so we could fight the fire."[59] Executive Officer Lieutenant Commander John Eckelberry recalled that "within seconds, I saw the signalmen forming up a hose team. . . . It was like that throughout the whole process."[60]

With its keel cut in two, *Samuel B. Roberts* was now held together only by its main deck. More immediately, flooding and fire threatened to sink the ship. Additional challenges, like an overwhelmed power grid, disabled systems, continued lurking Iranian forces, and injured crewmen, complicated the response to the fire and flooding. The mine knocked out several key damage control systems, hindering the crew's efforts. For example, Chief Walker found that the gas turbine engines had rocketed to over 2,000 degrees. He tried to suppress fires in the gas turbine engines with an automated Halon fire suppression system, which was offline.[61] Likewise, the AFFF system in parts of the ship stopped working due to flooding in AMR 3.[62] Even worse, *Roberts* lost electrical power, meaning the ship had no lights or communications and reduced pumping capacity.[63]

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58. U.S. Navy, "Persian Gulf Special," *Navy News This Week,* April 1988, 1:19, https://www.youtube.com/watch?v=KNOQpX4WSPk.

59. Quoted in *Navy News this Week*, 0:35.

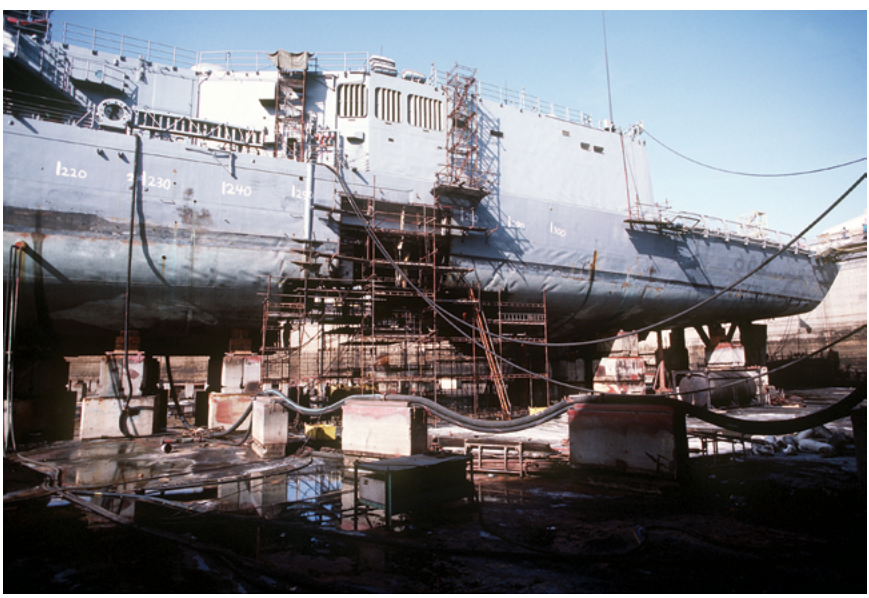
60. Larter, "Saving Sammy B."

61. Bradley Peniston, "The Day Frigate *Samuel B. Roberts* Was Mined," *USNI News*, 22 May 2015, https://news.usni.org/2015/05/22/the-day-frigate-samuel-b-roberts-was-mined.

62. NAVSEA, "Final Report," 6-23–6-26.

63. Rinn, "Saving *Samuel B. Roberts.*"

The crew had to creatively work around these equipment failures. Shortly after the blast, Hull Maintenance Technician Second Class Timothy Regan headed to fight the fire in the MER. However, "we quickly found out that we had no firemain. So, we started rigging P-250 pumps off the starboard side quarterdeck."[64] Commander Rinn credits Fireman Mike Tilly as one of a few key sailors who were in the right place to save the ship.[65] On 14 April, Tilly was stationed in AMR 1. When the power went out, he, along with Gas Turbine System Technician Second Class Randy Tatum, knew they had to restart diesel generator 1. Tilly climbed inside the generator to try a "suicide start"—manually starting the engine while standing on top of it. Despite extreme risk, he got the engine started with the help of Tatum and other sailors, who adjusted the surrounding circuit boards and gave Tilly tools. Tilly and his comrades restarted



*Samuel B. Roberts* in drydock in Dubai undergoing repairs, revealing the scale of damage to the ship, 1988. (NARA, 6443425)

64. Heine, "This is No Drill!," 3–4.

65. Peniston, "The Day Frigate *Samuel B. Roberts* Was Mined"; Rinn, "Saving *Samuel B. Roberts*."

the generator at 1658, which restored power to the ship's radio and electrical grid shortly thereafter, giving the crew a fighting chance.[66]

## Stabilizing Flooding (1700–1725)

With one generator on, the crew could now shift to more systematic damage control efforts, which required ever more electrical power. Two of the ship's three remaining inactive generators were located in AMR 2. Chief Walker sent teams to restart those engines, but they found that AMR 2's problems went much deeper. By 1659, water in AMR 2 was six inches from the lower deck grates and rising.[67] Operations Specialist Second Class Richard Raymond, one of the first men to enter AMR 2, used a wooden wedge to try to seal a leak, but the bulkhead just split open, indicating that there was water in AMR 3 behind it.[68] Raymond was part of Repair Locker 2, a grab bag of cooks, postal clerks, radiomen, and others. A group of five sailors, led by ship's cook Mess Attendant Specialist Chief Petty Officer Kevin Ford, got to work in AMR 2. Finding that hard plugs damaged the already straining bulkhead, they resorted to stuffing soft material into the leaks.[69] Lieutenant Van Hook, the ship's chief engineer, remembered visiting AMR 2. "Water was just pouring in through cracks. Some guys had actually taken their shirts off and stuck them in the cracks."[70] With electrical power partially restored, Ford's sailors could start to pump water out of the space.[71]

While Repair Locker 2 worked, Rinn warned off a nearby Iranian aircraft and the frigate *Sabalan* and asked the Middle East Task Force for medical assistance.[72] The commander then went on a tour

66. Peniston, *No Higher Honor*, 133–36; Rinn, "Saving *Samuel B. Roberts*."

67. NAVSEA, "Final Report," 3-4.

68. AMR 3 was, at this time, completely flooded. Peniston, *No Higher Honor*, 143; Rinn and Lippold, "Fight the Ship"; Peniston, "The Day Frigate *Samuel B. Roberts* Was Mined."

69. Peniston, *No Higher Honor*, 143–44; Rinn, "Saving *Samuel B. Roberts*."

70. Peniston, "All Hell Broke Loose," 72.

71. Peniston, *No Higher Honor*, 145.

72. Rinn and Lippold, "Fight the Ship"; Peniston, *No Higher Honor*, 140–42; Larter, "Saving Sammy B."

of the ship. He made it to AMR 2 and found mattresses and clothing stuffed against actively leaking holes. Rinn told the five sailors there that the ship would sink and everyone would die if they could not stop the leaking. They assured him they had it under control. As Rinn left, one of the sailors started a Journey album on a boom box. Rinn turned around and told the men he half expected to never see again that "even now, your taste in music sucks."[73]

Returning to the bridge, Rinn called Admiral Less and told him about the flooded spaces, wounded sailors, and continued leaks and fires. Less asked Rinn, "Considering your situation, what do you think about remaining with the ship?" Rinn replied, "I haven't thought about that at all. I have no desire to leave the ship. We'll stay with the ship and fight it. Right now, I think we can win this thing. We have no other choice."[74] Rinn later explained that he calculated that he would lose half of his crew if they evacuated the ship due to sharks and sea snakes. However, "the real reason" was that "commanding officers don't get ships in the United States Navy to surrender them or lose them. They get them to fight them."[75] When Less asked if Rinn had "anything else to pass," Rinn signed off with "No Higher Honor," echoing Lieutenant Commander Copeland after the Battle off Samar.[76]

By then though, *Roberts'* crew had to deal with yet another critical problem. After the explosion, Chief Gunner's Mate Chief Thomas Reinert observed fire teams dumping seawater down *Roberts*' furiously smoking stack. Familiar with the ship's layout, he realized that an engine room fire could spread to the magazines. He checked the torpedo magazine first, found a warm spot, and had a few sailors swab down the walls to keep them cool.[77] A few minutes later, he discovered that the 76-millimeter magazine was 115 degrees and

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73. Rinn and Lippold, "Fight the Ship." According to Rinn, he helped repair team 2 calm down when he insulted Journey. They reasoned that if Rinn had enough time to joke around, the situation must not be too bad.

74. Mussi, "To See the Dawn," 8.

75. Rinn, "Saving *Samuel B. Roberts.*"

76. Mussi, "To See the Dawn," 8; Wise, *Inside the Danger Zone*, 180.

77. Peniston, *No Higher Honor*, 149–50.

rising and reported it to the central control station. Commander Rinn ordered the ammunition tossed overboard at 1716.[78] Reinert and Lieutenant Commander Eckelberry then organized a chain of sailors to carry 50-pound shells out of the magazine.[79] Unfortunately, the sailors did not think to take the ammunition out of its waterproof containers, meaning that the water around *Roberts* was soon littered with floating 76-millimeter shells.[80] Over the next grueling hour and a half, dozens of sailors moved around 700 rounds, eventually stacking them on the forecastle.[81] Chief Reinert decided not to tell his sailors that the magazine sprinkler had no pressure.[82]

The ever-warming magazines were just one symptom of a severe fire located in the ship's gas turbine modules. The exact location of the fire was difficult to find or directly attack, so firefighters poured water down the stack and into cracks in the hull. These efforts not only failed to extinguish the fire, but they also exacerbated flooding onboard. Boatswain's Mate Second Class Kim Sandle informed Rinn that, "if I get down on my hands and knees on the poop deck, I can put my hand in the water."[83] Rinn remembered that firefighters had almost sunk *Stark*, so at 1724, he paused firefighting efforts on the ship.[84] Though the situation was grim, Rinn was right to pause the firefighters and trust Repair Locker 2 and the rest of his crew. By 1725, Chief Ford could report that the water in AMR 2 was holding at six inches below the floor grating. The bulkhead still leaked, but water could be pumped out of AMR 2 as fast as it entered.[85]

78. NAVSEA, "Final Report," 3-5–3-6; Larter, "Saving Sammy B."

79. Larter, "Saving Sammy B."

80. Rinn and Lippold, "Fight the Ship."

81. Mussi, "To See the Dawn," 8–9; NAVSEA, "Final Report," 3-7.

82. Mussi, "To See the Dawn," 8.

83. Peniston, *No Higher Honor*, 153.

84. NAVSEA, "Final Report," 3-6; Larter, "Saving Sammy B."

85. Peniston, "The Day Frigate *Samuel B. Roberts* Was Mined."

## Fighting the Fire (1726–1935)

Once the crew had stabilized the flooding, they shored up damaged bulkheads, continued to move shells, pumped water out of the ship, resumed firefighting, and used *Roberts*' helicopter to evacuate the wounded to *Trenton* (LPD-14), one of several ships rushing to bring aid.[86] The sun set at 1759, immersing the Gulf in darkness lit only by the blazing ship.[87] The crew used their damage control training to jury-rig couplings to bypass malfunctioning fire mains and keep their fire hoses running.[88] Still, the number 1 gas turbine module continued to burn, despite crewmen pouring AFFF concentrate and water onto it through the stack and cracks.[89]

At 1909, a CH-46 helicopter from *San Jose* evacuated eight injured *Roberts* crewmen.[90] While approaching *Roberts,* the CH-46 crew asked if they could leave a 250-gallon bladder full of aviation fuel onboard the ship. *Roberts* personnel said no, as the ship was still on fire. The CH-46 dropped the bladder into the water close to *Roberts,* which a crewman marked with a magnesium flare.[91] Shortly thereafter, Commander Rinn noticed the flare floating next to the bladder and a cluster of 76-millimeter shells bobbing in their watertight containers and thought to himself, "Damn. This is not my best day in the Navy."[92] In addition to reminding Rinn that you need to tell the crew to take seemingly commonsense precautions, this potential disaster convinced Rinn it was time to leave. He headed to the bridge to plot a path out of the minefield.[93] Rinn picked course

86. NAVSEA, "Final Report," 3-7–3-8.

87. USS *Samuel B. Roberts* Deck Log.

88. NAVSEA, "Final Report," 6-1–6-7.

89. NAVSEA, "Final Report," 3-8.

90. NAVSEA, "Final Report," 3-8.

91. Peniston, *No Higher Honor*, 164–65.

92. Peniston, *No Higher Honor,* 165–66; Rinn, "Saving *Samuel B. Roberts*."

93. Peniston, *No Higher Honor*, 165–66.

146 and told the bridge crew to head out at three knots using the auxiliary propulsion units.[94]

Meanwhile, Lieutenant Van Hook looked for the source of the fire. He went to the top of the superstructure and saw "lots of people working hoses, pouring stuff down the stacks. The air intakes [for the gas turbines] are on the sides of the superstructure. I went in a hatch up above the intake on the side there, crawled around to where I could look all the way down to the engine modules. I could see flames and water down there. But there was no way to get at it. No way to get a hose in there." He explained to Rinn that "the engines are still on fire. They're underwater, but they're on fire, and that's what you're seeing."[95] Having explored the ship while it was still under construction, Van Hook proposed an unorthodox solution to the fire—open up a large access plate and pour water and fire suppressant directly into the burning turbine shaft. Rinn agreed, though he noted that Van Hook's solution would expose the fire to the open air, potentially helping it burn brighter. Indeed, fire leaped 15 feet into the air when crewmen removed the hatch at 1929. Fortunately, pouring water directly into the gas turbine module fire put it out by 1935, almost three hours after the ship struck the mine.[96]

*Samuel B. Roberts* was not entirely out of danger, but the sense of relief was palpable as the flames died down. Unfortunately, as the ship moved slowly out of the minefield, sailors could see the deck bending "like a soda can" as *Roberts* now lacked the structural support of the keel.[97] Though the crew was exhausted, hungry, and thirsty, they did their best to solve this last problem. Senior Chief Boatswain's Mate George Frost used three-quarter-inch phosphor-bronze cables to tie together the 76-millimeter gun mount, the gas turbine access port, and other spots of the ship and tightened

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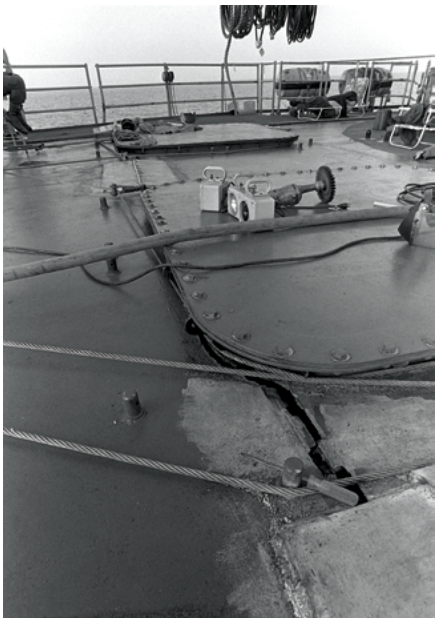
94. When talking about this later, Rinn never could recall how he came up with this course. Peniston, *No Higher Honor*, 166; Rinn, "Saving *Samuel B. Roberts*."

95. Peniston, "All Hell Broke Loose," 72.

96. Mussi, "To See the Dawn," 10; NAVSEA, "Final Report,"3-8; Rinn, "Saving *Samuel B. Roberts*."

97. Peniston, "All Hell Broke Loose," 73.

them to keep the ship together.[98] Later analysis revealed that *Samuel B. Roberts* passed over or near nine more mines on its way out of the minefield, but fortunately was not hit again.[99] Throughout the night, the crew continued to set up pumps, attempting to dewater AMR 3 and the MER, while helicopters took away the injured crew and brought damage control equipment, water, and food.[100] Later, *Roberts* would meet up with the tug *Hunter*, which took the frigate safely to Dubai. The ship was eventually transported back to the United States, repaired, and returned to service in 1989.[101]



Close-up view of *Samuel B. Roberts*' cracked starboard weather deck. Crew members used cables in an attempt to keep the ship from cracking further, 1988. (NARA, 6484623)

## Lessons Learned

Commander Rinn spoke often about his experiences on *Samuel B. Roberts*. He always emphasized that training, leadership, and courage saved his ship. Constant, difficult, realistic training was vital to the ship's survival. In 1988, *Ship's Safety Bulletin* interviewed survivors who said, "It's just like the way we trained during shipboard

98. Cutler, "Don't Give up the Ship"; NAVSEA, "Final Report," es-5 says that these "attempts to reinforce the structure were ineffective." Commander Rinn disagreed, saying later that efforts to tie the ship together "contributed dramatically" to saving the ship. See Rinn, "Saving *Samuel B. Roberts*."

99. Peniston, *No Higher Honor*, 166.

100. NAVSEA, "Final Report," 3-8–3-10.

101. Evans, "*Samuel B. Roberts* III."

GQ [general quarters] drills."[102] These survivors were prepared thanks to outstanding leadership onboard. Commander Rinn empowered his subordinate leaders, perhaps most noticeably Lieutenant Sorensen, who masterminded the damage control training that saved lives in the Arabian Gulf. Rinn wrote to Lieutenant Sorensen on 17 April. In part, the letter read, "All hands requested I pass on to you our sincerest appreciation for the job you did so well in preparing us for our toughest fight. We saved our ship after hitting a mine in no small part because of your relentless training and insistence on SBR's [*Samuel B. Roberts*'] damage control readiness. Your shipmates thank you for giving us the edge in the battle between life and death. No higher honor."[103] *Roberts* and its crew survived because leaders like Rinn and Sorensen prepared their teams, and Ford, Reinert, Van Hook, and many, many others were able to lead those teams when the ship needed them.


This plaque commemorating the sailors of *Samuel B. Roberts* (DE-413) inspired the sailors of *Samuel B. Roberts* (FFG-58) when fighting to save their ship in 1988. (NHHC, NH 2015.034.001)

102. Tony Carambia, "A Crew Saves Their Ship To Fight Again," *Ship's Safety Bulletin* (June 1988), *Samuel B. Roberts* (FFG-58) III, box 304, folder 3, Ships History Post 2001, AB, NHHC.

103. Paul X. Rinn to Eric Sorensen, 17 April 1988, *Samuel B. Roberts* (FFG-58) III, box 304, folder 1, Ships History Post 2001, AB, NHHC.

Finally, personal courage, devotion, and resilience matter. While these are intangible qualities, they can be honed and encouraged. Relentless training and inspiring leadership help make a crew ever more prepared and courageous. So can an emphasis on heritage. As the hours dragged on after the mine hit and *Roberts* teetered on the verge of sinking, Commander Rinn noticed something. *Samuel B. Roberts* featured a bronze plaque commemorating the sailors of their predecessor, DE-413. As sailors ran to save FFG-58, "I realized that every member of the crew was touching [the plaque]. It was their moment to reach back to history and show that now they were walking in their footsteps, and they were not going to give that ship up. And they didn't."[104] Heritage can be a powerful motivator for personal and collective bravery and endurance. Commander Rinn used the remarkable history of DE-413 to teach his sailors that they were part of a greater story. The history of a ship name or the Navy more broadly can help sailors understand that men and women like them have gone through similar, or worse, experiences in the past and succeeded. Even before the mine hit, *Roberts'* crew were, according to Rinn, "men who cherish their motto, 'No Higher Honor,' and grin with pride when you ask them about their ship as they confidently state, 'Nobody does it better.'"[105]

104. Rinn and Lippold, "Fight the Ship."

105. Rinn, "Command in the Spotlight," 8.

# "Don't Give Up the Ship": The Attack on *Cole* (DDG-67)

Brooke C. Talbott

## Introduction

I saw the little boats around us. I saw the garbage barge backing out. . . . Everything looked normal, nothing different. It took me about 10 minutes to walk the whole deck. I went inside, everybody's having chow. After I got done eating chow, there's a whole bunch of us in there, we're sitting down and just relaxing. As a matter of fact, we were watching *Mission Impossible*. . . . I remember sitting there and I was finally inside, I was finally getting some water and feeling better from being overheated. I was thinking, "Wow, this is a pretty good movie, this is going to be a good day at sea. We're going to get some fuel; we're going to head back out and we're going to catch up with the battle group. . . . " Then all of a sudden, within seconds, time stopped. Everything was black. You couldn't see anything. I felt something on top of me like metal. . . . But I heard—it

was like if you heard a large gun go off in the distance, even though it was right next to me.

—Chief Boatswain's Mate (BMC) Eric Kafka[1]

On the morning of 12 October 2000, USS *Cole* (DDG-67) approached the Port of Aden, Yemen, for a routine refueling stop. At 1118, two al-Qaeda terrorists piloting a small boat detonated hundreds of pounds of explosives on the port side of the ship. The blast ripped a 40-by-60-foot-wide gash in the side of *Cole*, killing 17 sailors and wounding 37 others. In the aftermath of the explosion, main engine room (MER) 1 was breached and flooding, the galley directly above was "ripped into shreds and unrecognizable," and floodwaters began to overtake auxiliary machine room 1, the supply office, and the reefer decks. Simultaneously, a mixture of fuel and water slowly began to flood MER 2.[2] As their ship began to take on water, the crew's exceptional preparation showed; they instinctively implemented effective damage control procedures, demonstrating flexibility, superior training, and impressive knowledge of their ship. When the security of *Cole* was in question, sailors ran toward an unknown threat, placing the safety of their ship and shipmates above all else. When wounded shipmates needed attention, the crew, no matter their rate, relied on their first aid training to save lives. When the MER began to flood, preventing critical generators from operating, crew members volunteered to face danger head-on to save their ship. The crew of *Cole* acted as a model for successful damage control efforts in that they adapted to every emergency in their path.

In a memo assessing "Damage Control Efforts in USS *Cole,*" Rear Admiral J. B. Foley remarked on the exceptional efforts of the crew to save their ship, as well as the effective training that they underwent

1. Eric Kafka, in discussion with Gary Hall and Michael McDaniel, 20 March 2001, Navy Combat Documentation Detachment (DET) 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 2, folder 9, Archives Branch (AB), Naval History and Heritage Command (NHHC), Washington Navy Yard, DC, 16–17.

2. Kirk Lippold, *Front Burner: Al Qaeda's Attack on the USS* Cole (PublicAffairs, 2012), 63.

in the months leading up to deployment.[3] Foley found that the crew "developed an aggressive and effective damage control training program" that was carried out in the interdeployment training cycle as well as the weeks following deployment. As a result of this training, the crew was prepared to successfully combat the explosion and its aftereffects. There were multiple key aspects of *Cole*'s training program that prepared them for the attack. *Cole*'s Indoctrination Division Training featured basic damage control training with a focus on first aid and emergency escape breathing device (EEBD) training. All crew members received one full day of first aid training, during which Chief Hospital Corpsman (HMC) Clifford Moser ensured that each sailor trained as both patient and provider.[4] During their Atlantic transit, the chain of command "placed a high priority on back-to-basics, realistic, progressive hands-on damage control training," featuring a weekly damage control day.[5] While in the Mediterranean, the security team underwent extensive training, coordinating live fire exercises.[6] In the months leading up to the explosion, the crew conducted shipwide EEBD and self-contained breathing apparatus (SCBA) training, which, according to crew members, was a key reason why so many lives were saved.[7]

The exceptionalism of the crew's discipline and training was further demonstrated on their day of deployment. In the months leading up to deployment, Commander Kirk Lippold and *Cole*'s crew worked toward an unprecedented achievement: qualifying all-en-

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3. J. B. Foley, "Damage Control Efforts in USS *Cole*," Memo from Commander, Naval Surface Force, U.S. Atlantic Fleet to Commander in Chief, U.S. Atlantic Fleet, 21 December 2000, box 1, folder 9, AB, NHHC, 2–3.

4. Clifford "Cliff" Moser, in discussion with Gary Hall and Michael McDaniel, 21 March 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 2, folder 9, AB, NHHC, 30.

5. Foley, "Damage Control," 2.

6. Joseph "Joe" Gagliano, in discussion with Gary Hall and Michael McDaniel, 16 March 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 2, folder 5, AB, NHHC, 42.

7. Egress training, emergency escape breathing apparatus training, and self-contained breathing apparatus training are currently required to be completed by new sailors within 72 hours of checking onboard. All other members are required to complete training semi-annually.

listed crew members to man each watch station on the sea and anchor detail, including the positions normally filled by experienced officers.[8] In order to achieve this goal, the crew worked together to ensure that their senior petty officers and chief petty officers had the time to earn their added qualifications, often resulting in extra work and additional watches for the remaining crew. On 8 August 2000, *Cole* deployed with a fully qualified, all-enlisted crew manning each watch station. Without the extensive training undertaken by *Cole*'s crew in the months leading up to 12 October, damage control efforts after the attack may not have been successful. Due to the crew's preparedness, the first 20 minutes after the explosion saw triage already underway, casualty evacuation in progress, and repair

*Cole* (DDG-67) at sea one month before the 12 October 2000 suicide attack by al-Qaeda. (NARA, 6610792)

8. Lippold, *Front Burner*, 20–21. The positions normally only filled by experienced officers were officer of the deck, helm safety officer, after steering helm safety officer, and conning officer.

locker personnel working effectively at general quarters. Utilizing their knowledge of the ship and relying on effective damage control training, all crew members worked as a true team to save their ship.

## Security

> When I got up there, that passageway was packed. That was the passageway that they had been using to take off casualties from up in the battle-damaged area to the starboard side, and they were lining them down the passageway. I'll never forget running down that passageway. FC3 [Fire Controlman Third Class] and I were the first people to leave the armory armed with weapons. I will never forget the look on peoples' faces as we were running through that passageway. When they saw you chambering your round as you were running down the passageway, they gave you this look. When I thought it was a fueling accident and then I found out what happened, I had that same look.
>
> —Lieutenant Joseph "Joe" Gagliano[9]

In the days leading up to the attack, Lieutenant Joe Gagliano, *Cole*'s weapons officer and force protection officer, and Lieutenant (j.g.) Robert Mercer, the strike officer and force protection assistant, drafted a force protection plan for the refueling visit to the Port of Aden.[10] *Cole*'s crew did not receive any prior information regarding the logistics of the port, and as a result, the force protection plan was written for a worst-case scenario. The plan consisted of all 62 measures required for Threat Conditions Alpha and Bravo, with the understanding that the crew would adjust their security posture accordingly based on the circumstances in port.[11] *Cole* approached the port in the early morning hours of 12 October under Threat

9. Gagliano, discussion, 28.

10. Lippold, *Front Burner*, 31–32.

11. Threat Conditions (renamed Force Protection Conditions in mid-2001) refer to defensive postures to be taken in response to the perceived likelihood of a terrorist attack. Alpha refers to a low and unpredictable threat, while Bravo applies in conditions of more predictable terrorist activity (and is considered a higher alert level than Alpha).

Condition Bravo. At 0935, the sea and anchor detail was complete. At 1031, refueling had begun.

At lunchtime on 12 October, Lieutenant Gagliano was sitting in the wardroom discussing upcoming farewells for *Cole* sailors with a group of officers. Soon after sitting down, a powerful bang interrupted their conversation. The officers were immediately enveloped in darkness. As the battle lanterns came on, Gagliano's chair bobbed up and down as the ship sagged with the aftershocks of the explosion. Gagliano could hear only two distinct sounds: that of china breaking in the wardroom pantry and a wobbling sound, like the sound of waving sheet metal. As the officers scattered to their general quarters stations, Gagliano was unsure of what had just happened to the ship. Nevertheless, he knew that he had to get topside to defend *Cole*.[12]

In the moments after the attack, many of the crew members, including Gagliano, assumed that the explosion was caused by a refueling accident but carried out damage control efforts without hesitation. As the force protection officer, Gagliano knew that no matter if the explosion had been caused by an attack or a fuel accident, the ship needed to be able to man weapons and escape the port if needed.[13] Deterring additional threats was of paramount importance and Gagliano knew that it was up to his team to protect their shipmates. As he ran toward the security force issue room (SFIR), one of *Cole*'s major weapons issue points, his progress was halted by the mass of crew members trying to escape the smoke. It was then that he realized what had just happened to the ship: "As the people were coming up and the smoke was coming up, you could smell it. I sat there and I smelled it...it was the smell of gunpowder. And that's when it dawned on me. I was going to prepare for the attack and the attack had already happened."[14] From this point on, Gagliano worked under the assumption that the explosion was a preparatory attack. He readied himself for the possibility of a second boat driving through the hole and detonating from inside the ship, splitting

12. Gagliano, discussion, 20.

13. Gagliano, discussion, 20.

14. Gagliano, discussion, 22.

*Cole* in two. As crew members tried to get out of the ship to escape the smoke, Gagliano instructed them to remain inside. If he let his shipmates topside, they would be exposed to potential threats of sniper fire.[15]

After running topside to survey the situation, Gagliano next headed for the petty officer of the watch shack with the intention of communicating with his team through the 1 main circuit (1MC). When he picked up the microphone, the circuit was dead. Gagliano had no idea how he was going to communicate with his team. He later recalled, "The first thing that I was thinking of was, 'How are we going to communicate?' 'How do I tell my security guys to get to their security post, to man up the .50 cals [calibers] and M60s if I can't talk to them?' The 1MC has always been available in all the trainings we have ever done. We have always been able to talk on the 1MC. How am I going to talk to them?"[16] Gagliano headed for the SFIR. When he arrived, his entire security force had done exactly what they had been trained to do: report to SFIR for weapons issue. After instructing his security forces to man the M60s and .50-calibers and arm themselves with rifles, shotguns, and 9-millimeter pistols, Gagliano and his team headed topside to defend the ship. Once all weapons were manned, Gagliano cleared the corpsmen to come topside with the wounded crew members.

When Gagliano witnessed the amidships triage area and the flight deck, he understood the seriousness of the attack: "I remember seeing just a sea of people who were lying out on the flightdeck. I came down the ladder and I could hear Doc giving directions, Master Chief giving directions, and the first thing I heard was somebody screaming, 'Doc, you've got to come take a look at this guy.' And Doc looked at him and said, 'He's not serious enough, this [next] guy is going to die,' or words to that effect."[17] As Gagliano and his team defended the ship, it was difficult not to help with the medical and

15. Current anti-terrorism and force protection measures require no personnel topside with the exception of security force members.

16. Gagliano, discussion, 24.

17. Gagliano, discussion, 38.

damage control efforts. However, Gagliano knew that his team's overriding priority was to defend the ship: "I told them, 'Your number one mission is to make sure that we do not lose any other sailors.'"[18] The crew of *Cole* had no idea what was coming next. As a result, Gagliano and his team remained ready to defend their ship.

In the immediate aftermath of the attack, security for the ship rested on the shoulders of *Cole*'s sailors. It took a day and a half for a contingent of Marines from the fleet anti-terrorism security team (FAST) company to arrive. As infantry the FAST Marines could not only secure the ship itself, but also possessed the skills and equipment necessary to establish a secure perimeter on land to protect the ship. Upon their arrival, according to Commander Lippold, one could almost hear the crew breathe a sigh of relief: "The Marines had landed and were here to help us save the ship."[19] Before the Marines were able to take over onboard security watches for *Cole*'s crew, however, Commander Lippold required them to stand at least two watch rotations with *Cole*'s security teams. This would give the Marines a better understanding of how the port operated, how internal communications worked, and how to react when small boats approached the ship. By ensuring that the Marines could operate in conjunction with the aboard ship security forces, the crew of *Cole* ensured that their ship would remain protected from any future attacks. Had the security team not been trained, prepared, and ready to react to the explosion, the damage control efforts going on throughout the ship may have been severely hampered.

## Medical

> I was screaming out orders. I was screaming for IV bags. I was screaming for dressings because nothing was there. Just trying to pull the medical box, find the first aid box, but I needed it here now. I started treating them and then I started getting people to assist, and at the same time damage control efforts were going on. We were treating

18. Gagliano, discussion, 40.

19. Lippold, *Front Burner*, 114.

patients, and at the same time we had *Cole* sailors and repair parties making their way around us.

—Command Master Chief (CMC) James Parlier[20]

Just before 1118, Chief Hospital Corpsman (HMC) Cliff Moser left the chief's mess and began walking down the port passageway toward chief petty officer berthing when he was suddenly thrown up in the air.[21] In the following moments, Moser listened for general quarters to be sounded. There were no lights and no alarms coming from the 1MC. Acting on his experience and training, Moser immediately began directing nearby sailors to their respective repair lockers and general quarters stations. Just five minutes after the explosion occurred, the nearby sailors under Moser's direction had either put on SCBAs to investigate the damage or were heading toward their respective repair lockers and general quarters stations. After ensuring that his shipmates were successfully carrying out damage control efforts, Moser headed to the forward battle dressing station to begin treating casualties.

By the time Moser was cleared by Gagliano to move casualties topside, parts of the ship had started to fill with smoke. When he arrived topside, he was met with a sea of sailors: "As soon as I opened the hatch and started to step outside of the skin of the ship. . . it was overwhelming. Just absolutely, unbelievably overwhelming."[22] Moser and his team were faced with compound fractures, shrapnel wounds, lacerations, and internal injuries. As Moser began triaging, it was a race against time. He later recalled that one of the hardest moments of his life occurred when he had to make the call to stop treatment on a sailor. Moser and a small group of crew members had worked tirelessly to administer CPR to attempt to save his life. When it became clear that he was not going to make it, Moser had to make the decision to step away and treat other injured crew members. Setting

20. James Parlier in discussion with Gary Hall and Michael McDaniel, 31 March 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 3, folder 6, AB, NHHC, 9.

21. Moser, discussion, 11.

22. Moser, discussion, 14.

aside their emotions, Moser and his team pushed forward, relying on their training to save their shipmates.

While HMC Moser was working amidships, Hospital Corpsman Third Class (HM3) Tayinikia Campbell was back aft treating the "walking wounded"—sailors with more minor injuries, such as broken jaws, cuts, and bruises.[23] The sailors assisting HM3 Campbell responded efficiently, applying their first aid training to save their fellow shipmates. The crew quickly accessed the first aid boxes, pulling out all available bandages and assisting the corpsmen in bandaging all sailors. When Campbell needed supplies, the crew found them without hesitation. The crew of *Cole* was so well trained in administering first aid that there were usually two sailors working on each injured shipmate, expediting the transport of casualties off the ship.

In order to quickly evacuate casualties off the ship for transport to a local hospital, the boatswain's mates rigged a makeshift brow out of a 12-foot wooden extension ladder.[24] Casualties were placed in Stokes litters and carefully lowered down the ladder with ropes. BMC Kafka, who had sustained serious injuries to his knee and lungs, later led a group of sailors in moving the ship's heavy metal brow into position, allowing casualties to be safely moved off the ship. In under two hours, all 37 wounded crew members were off the ship. The swift nature of treating the wounded sailors was due, in part, to a rare factor among U.S. Navy ships. James Parlier, *Cole*'s CMC, had 21 years of experience as a hospital corpsman. Well before 12 October, HMC Moser and CMC Parlier had discussed how they would react in the event of a real general quarters.[25] The two agreed that Parlier would man the aft battle dressing station. As a result, while HMC Moser and HM3 Campbell were treating sailors amidships, CMC Parlier had his own triage station set up back aft. CMC Parlier also attributed the speed of getting sailors off the ship to the

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23. Tayinikia Campbell in discussion with Gary Hall and Michael McDaniel, 14 March 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 2, folder 1, AB, NHHC, 5.

24. Lippold, *Front Burner*, 86–87.

25. Parlier, discussion, 7.

crew's training. While Parlier, Moser, and Campbell were working to save their shipmates, crew members fell back on their first aid training to secure dressings, debride eyes, and monitor airway, breathing, and circulation. Moser later argued that one of the greatest lessons learned from this incident was the importance of training.[26] According to Moser, the hands-on treatment that he carried out after the explosion was minimal. Once he examined the patient and determined the degree of fracture, laceration, or other wounds, the crew took care of applying battle dressings and splints. By implementing their training and automatically setting up triage stations throughout the ship, the corpsmen and crew were able to save their shipmates.

The Navy tug vessel USNS *Catawba* (T-AFT-168) escorts *Cole* to a staging point in Aden Harbor where it will await transportation by the Norwegian heavy transport ship MV *Blue Marlin*, 29 October 2000. (NARA, 6610001)

26. Moser, discussion, 29.

## Stabilizing the Ship

> I remember being on deck at 12 and the captain came over the 1MC and said, "We need people to remuster general quarters stations." So, we went around and woke everybody back up again: "Go muster general quarters stations, we've got a problem. . . . " I went down to repair 2 and they said, "We need a couple shoring teams with metal and wood to go down to main 2. We think we found a structural crack and we're taking on water. . . . " I was scared, but I volunteered to go and take some of that metal down there. That was the most scared I've ever been in my entire life. To set those metal rods up against that wall, possibly knowing if there's a crack that means that it's going to bend, and when it starts bending that means its gonna give. . . . It was so frightening. But because I knew that this is what I needed to do, I went down there, and I did my job. I think that's also what a lot of other people did there, too. They knew this is their job and it's not just for the good of you to go down there. It's also for the good of your shipmates to make sure the ship stays afloat.
>
> —Electronics Technician Third Class (ET3) Russell Dietz[27]

While medical and security personnel were saving and protecting their wounded shipmates topside, damage control efforts were going on inside the ship. Unlike security and medical efforts, however, the efforts to combat flooding, prevent potential fires, and restore electricity did not let up after the first day. According to Gas Turbine System Technician Senior Chief Petty Officer (GSCS) Jeffrey Sparenberg, "A lot of people see *Cole* and they see the explosion on 12 October. That was one day. The *Cole* incident lasted three weeks."[28]

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27. Russell Dietz in discussion with Gary Hall and Michael McDaniel, 15 March 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 2, folder 3, AB, NHHC, 19–20.

28. Jeffrey Sparenberg in discussion with Gary Hall and Michael McDaniel, 14 March 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 4, folder 2, AB, NHHC, 26.

Around 45 minutes after the explosion, Gas Turbine Systems Technician (Mechanical) Petty Officer First Class (GSM1) George Kroboth was relieved from central control station (CCS), where he had been standing watch before the explosion. As he made his way down to check on the generators and MERs, Kroboth's thoughts centered on two main concerns: fuel in the water and the threat of potential fires. When he opened the door to MER 1, he was immediately hit with the smell of fuel: "I reported it to CCS, and we went and made a bucket brigade of Aqueous Film Forming Foam (AFFF). We just doused that space with AFFF."[29] The quick actions of Kroboth and his fellow sailors ensured that damaged electrical wires and escaped fuel did not spark fires. Over the following hours, the repair electricians rigged casualty power cables and continually fought with generators to ensure that the crew had electricity. Simultaneously, repair locker personnel worked tirelessly to handle flooding and minimize the potential for fires. As the days progressed, the crew of *Cole* had to overcome perhaps their biggest battle yet: saving their ship from sinking. The engineering department was being put to the test, fighting not only to keep the ship running but also to keep it afloat.

On the night of 13 October, Kroboth and his fellow engineers had finally gotten berthing up and running with air conditioning, the collection, holding, and transfer system, and showers.[30] Around midnight, Kroboth crawled into his rack, enjoying the newly air-conditioned space. He had slept only a couple of hours over the past two days. Suddenly, the 1MC roared to life, and Kroboth heard the dreaded announcement of "flooding, flooding, flooding." The seal had just given way in MER 2, and water was coming in fast. Kroboth and his shipmates got right back up and went into damage control efforts: "If we lost that space, we didn't think the ship would stay afloat with two main spaces flooded."[31] When Kroboth arrived in

29. Aqueous film forming foam (AFFF) is a firefighting foam used to extinguish flammable liquid fires.

30. George Kroboth III in discussion with Gary Hall and Michael McDaniel, 23 April 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, tape, box 4, folder 18, AB, NHHC, 40:08.

31. Kroboth, discussion, 40:08.

MER 2, the scene confronting him was frightening: "Say you've got a water faucet running and you take your finger and stick it inside the faucet. But your finger doesn't quite completely fill the hole so that the water that's coming around your finger is just shooting out. Now expand that about 300 times, the size of a shaft on a DDG, and that's basically what it looked like."[32] Kroboth and the damage controlmen did not falter but instead sprang into action, relying on their training to save the ship. They spent the rest of the night dewatering and shoring up MER 2. The arrival that night of three ships that could offer aid—HMS *Marlborough* (F233), USS *Donald Cook* (DDG-75), and USS *Hawes* (FFG-53)—relieved some of the pressure on *Cole*'s crew. USS *Camden* (AOE-2) and USS *Tarawa* (LHA-1) would soon follow. Despite the personnel and support these friendly vessels provided, the responsibility for saving the ship fell to *Cole*'s crew.

By the night of 14 October, efforts to control flooding seemed to be working. The damaged seal surrounding the starboard propeller shaft had been plugged with wooden wedges and oakum, and the engineers had restored the main drainage system, which could pump up to 1,200 gallons of water per minute.[33] Late that night, however, the situation took a turn for the worse. Water levels started to rise again, and around 0130 on 15 October, something in the machinery room gave way and "there was a loud whoosh of air from inside the space, and suddenly, the floodwaters began rising rapidly."[34] The engineers attempted to slow the flow of water with pumps to no avail. By 0230, water was flowing into MER 2 at a rate of over 20 gallons per minute. Just as Commander Lippold ordered the crew back to repair lockers, the ship was enveloped in darkness. Gas turbine generator 3, the ship's only source of power, had gone down. The engineers spent the night attempting to restore the generator. Despite the engineers' best efforts, the rising water levels made the feat nearly impossible. The following morning, engineers and hull technicians attempted to use a portable exothermic cutting unit to cut a hole in the side of

32. Kroboth, discussion, 40:08.

33. Lippold, *Front Burner*, 125–26.

34. Lippold, *Front Burner*, 127.

the ship, which would allow them to pump water over the side.[35] As soon as they tried to light the torch, however, they discovered that the batteries were dead. As *Cole* continued to sink, Commander Lippold was left with few options to save the ship.

With water pouring into the ship, Lippold ordered his crew to form a bucket brigade leading out of MER 2:

> Everyone swung into motion and the ship seemed to come to life as sailors rushed about the ship gathering buckets and staging them near the entrance to the engine room. By now the floodwaters were four feet over the deck plates in the lower level, and the vital equipment needed to get the generator running again was partially or completely submerged. After taking about fifteen minutes to get organized, the crew had established a line that ran from the flight deck, into the starboard passageway, and down the ladders to the lower level of the engine room. Soon bucket after bucket of water was being handed up and dumped over the side. We were saving our ship.[36]

The crew bailed water for two hours. This, coupled with the engineers working on the pumps, enabled the crew to keep the flooding at bay. Lieutenant Commander Chris Peterschmidt, *Cole*'s executive officer, recalled speaking with the crew that night: "That third night, that long night. I remember mustering the crew. I never in all my naval career thought I'd ever have to use the words 'Don't give up the ship,' but here I found myself using those words. And they were so appropriate."[37] The crew would spend the following days continuing to fight to save their ship. Despite facing constant battles to save generators, fight floodwaters, and prevent fires, the crew of *Cole* remained steadfast.

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35. Lippold, *Front Burner*, 130.

36. Lippold, *Front Burner*, 130–31.

37. John Chris Peterschmidt in discussion with Gary Hall and Michael McDaniel, 20 March 2001, DET 206: USS *Cole* Norfolk and Pascagoula Deployments, 2001, transcript, box 3, folder 9, AB, NHHC, 41.

Port side view of *Cole* while being transported back to the United States on MV *Blue Marlin*, 31 October 2000. (Commander, Naval Surface Force Atlantic, 201009-N-N0701-00 88)

## Conclusion

> If someone asked me, "Is there one person who did everything to make it all happen?" It wasn't any one person. It was everybody. Everybody was reacting with probably some of the best skills and tact that I've ever seen in my life. Everybody worked as a team to protect the ship, protect its crew, and survive the situation.
>
> —BMC Kafka[38]

In the days that followed the attack, crewmembers of *Cole* fought tirelessly to free their shipmates trapped by the wreckage, limit flooding, prevent fires caused by damaged electrical systems and fuel ruptures, and defend their ship from potential threats. Had it not been for the successful and heroic damage control efforts of the crew, the U.S. Navy may have not only lost a destroyer, but many more sailors. While nothing could fully prepare sailors to handle an attack on their ship, those aboard *Cole* exemplified preparedness, jumping into action and relying on their training to save their ship

38. Kafka, discussion, 35.

and shipmates. When almost 20 percent of the crew was killed or wounded, the remaining sailors had both the technical knowledge and the leadership skills to fill the vacant positions.[39] In the hours and days after the attack, the crew of *Cole* not only demonstrated preparedness and flexibility, but also a detailed knowledge of their ship and the necessary leadership skills to save it.

At 0915 on 29 October, *Cole* was towed out of Aden Harbor.[40] Despite concerns regarding the ship's ability to successfully sail out of the harbor, *Cole* held together. As *Cole* moved down the channel, bystanders watching from land could hear "The Star-Spangled Banner" booming from the 1MC. As the song ended and *Cole* sailed further away from Aden Harbor, a recording of Jimi Hendrix's version echoed over the water. While the remaining crew was transported home via *Tarawa* and a flight from Rhein-Main Air Force Base, *Cole* was loaded onto the Norwegian heavy transport ship MV *Blue Marlin*. The crew arrived home to Naval Station Norfolk on 3 November. Their ship followed suit, arriving for repairs at Ingalls Shipbuilding Division in Pascagoula, Mississippi, on 13 December. On 13 December, just over 16 months later, on 19 April 2002, *Cole* returned to sea under its own power, sailing home to Norfolk and rejoining the Atlantic Fleet.[41] From the seaman to the commanding officer, the sailors of *Cole* stepped into leadership roles when their shipmates needed them most, refusing to give up the ship. Because of their efforts, *Cole* sails proudly today.[42]

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39. Jack Carr, host, *Danger Close*, podcast, "Al-Qaeda's Attack on the USS *Cole*," produced by JackCarrUSA, 11 December 2024, 2:11:29, https://www.youtube.com/watch?v=9NWgIT-p8VQ.

40. Lippold, *Front Burner*, 213–14.

41. USS *Cole* (DDG-67) Command History for Calendar Year 2002, NHHC, 12–13, https:// www.history.navy.mil/content/dam/nhhc/research/archives/command-operation-reports/ship-command-operation-reports/c/cole-ddg-67-i/pdf/2002.pdf.

42. For profiles of each of the 17 sailors who lost their lives on 12 October, see "USS *Cole* In memoriam—Honoring Those Lost," NHHC, 9 October 2020, https:// www.history.navy.mil/browse-by-topic/ships/modern-ships/uss-cole/cole-in-memoriam.html.

**In memory of those who made the ultimate sacrifice:**

Kenneth Eugene Clodfelter,
Hull Maintenance Technician Second Class, 21

Richard Dean Costelow,
Electronics Technician Chief Petty Officer, 35

Lakeina Monique Francis,
Mess Management Specialist Seaman, 19

Timothy Lee Gauna,
Information Systems Technician Seaman, 21

Cherone Louis Gunn, Signalman Seaman, 22

James Rodrick McDaniels, Seaman, 19

Marc Ian Nieto, Engineman Second Class, 24

Ronald Scott Owens,
Electronic Warfare Technician Second Class, 24

Lakiba Nicole Palmer, Seaman, 22

Joshua Langdon Parlett, Engineman Fireman, 19

Patrick Howard Roy, Fireman, 19

Kevin Shawn Rux,
Electronic Warfare Technician First Class, 30

Ronchester Manangan Santiago,
Mess Management Specialist Third Class, 22

Timothy Lamont Saunders,
Operations Specialist Second Class, 32

Gary Graham Swenchonis Jr., Fireman, 26

Andrew Triplett, Lieutenant Junior Grade, 31

Craig Bryan Wibberley, Seaman, 19

*Cole* passes the USS *Cole* memorial while departing Naval Station Norfolk for a scheduled deployment to the Fifth and Sixth Fleet areas of responsibility, 15 December 2016. (Defense Visual Information Distribution Service, 161215-N-VC599-143)

# Appendix: Abbreviations

| | |
|---|---|
| **1MC** | 1 Main Circuit |
| **AAW** | Anti-air Warfare |
| **AFFF** | Aqueous Film Forming Foam |
| **AMR** | Auxiliary Machinery Room |
| **ASUW** | Antisurface Warfare |
| **AWACS** | Airborne Warning and Control System |
| **BMC** | Chief Boatswain's Mate |
| **CHT** | Collection, Holding, and Transfer System |
| **CIC** | Combat Information Center |
| **CIWS** | Close-In Weapon System |
| **CL** | Light Cruiser |
| **CMC** | Command Master Chief |
| **CO** | Commanding Officer |

| | |
|---|---|
| **CPO** | Chief Petty Officer |
| **CPR** | Cardiopulmonary Resuscitation |
| **CV** | Aircraft Carrier |
| **CVA** | Attack Aircraft Carrier |
| **CVAN** | Nuclear-powered Aircraft Carrier |
| **CVE** | Escort Carrier |
| **CVS** | Antisubmarine Aircraft Carrier |
| **DANFS** | Dictionary of American Naval Fighting Ships |
| **DC** | Damage Control |
| **DCA** | Damage Control Assistant |
| **DCC** | Damage Control Central |
| **DD** | Destroyer |
| **DDG** | Guided Missile Destroyer |
| **DE** | Destroyer Escort |
| **DM** | Destroyer Minelayer |
| **EEBD** | Emergency Escape Breathing Device |
| **ET3** | Electronics Technician 3rd Class |
| **FC3** | Fire Controlman Petty Officer 3rd Class |
| **FFG** | Guided Missile Frigate |
| **FTG** | Fleet Training Group |
| **GQ** | General Quarters |

| | |
|---|---|
| **GSCS** | Gas Turbine System Technician Senior Chief Petty Officer |
| **GSM1** | Gas Turbine Systems Technician (Mechanical) Petty Officer 1st Class |
| **HM3** | Hospital Corpsman 3rd Class |
| **HMC** | Chief Hospital Corpsman |
| **LST** | Landing Ship, Tank |
| **LT** | Lieutenant |
| **MER** | Main Engine Room |
| **OBA** | Oxygen Breathing Apparatus |
| **QM3C** | Quartermaster Third Class |
| **SCBA** | Self-Contained Breathing Apparatus |
| **SFIR** | Security Force Issue Room |
| **TAO** | Tactical Action Officer |
| **Z** | Zulu or Greenwich Mean Time |

# Acknowledgments

It is fitting to acknowledge first the U.S. Navy sailors who have shown great skill and undaunting courage while battling the existential dangers described herein and in countless similar situations. They have upheld both the letter and spirit of the Navy's more than two-hundred-year-old rallying cry, "Don't Give Up the Ship." In doing so, many gave their lives or were grievously injured, and their service inspired all who contributed to this book.

Additional inspiration came from Master Chief Petty Officer of the Navy (MCPON) James M. Honea. He and his staff provided institutional support for the project from its outset. Committed wholeheartedly to readiness and resilience, MCPON also contributed a foreword that lays out a clear purpose for learning from the difficult trials of the past so that sailors are ready for tough tests in the future.

Collectively the authors comprised a great team with which to work. As their research and writing helped to shine a light on a vital topic, their diligence and collegiality helped immensely in keeping to a tight schedule.

The editors also would like to acknowledge many Naval History and Heritage Command (NHHC) colleagues who helped to sustain or offer direction for the project. Demonstrating their reliable professionalism, archivists and librarians afforded widespread and

timely access to source materials. Within NHHC's Histories Branch, Dr. Breanne Robertson, Acting Branch Head, along with Section Supervisors Dr. Peter C. Luebke and Mr. Timothy G. Heck, shared their seasoned guidance with the authors and editors. Working within the Communications and Outreach Division, Jacqueline S. Evans ably conducted or coordinated the editorial and production efforts, and Jiyoung Han adeptly designed the book's layout.

Finally, a special thanks goes to Lieutenant Garrett L. Barrios, Officer in Charge for the Damage Control Assistant—Senior Enlisted Course in Norfolk, Virginia, who provided much appreciated input on select chapters.

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