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Peter Kirsch, *Fireship: The Terror Weapon of the Age of Sail*. Translated from the German by John Harland. Naval Institute Press, 2009. 256 pp. Maps, illustrations, notes, bibliography, index.

Review by Robert Oxley, Ph.D. Embry-Riddle Aeronautical University

At least through the end of the 19<sup>th</sup> century, sailors embarked on ocean voyages in wooden vessels made watertight by flammable pitch and tar and fitted out with combustible cloth sails. Lines typically were tar-coated, and charcoal and wood were used for cooking on board. In short, sailing vessels were tinder waiting to be ignited. Accordingly, sailors have always feared onboard fires, and fire has been used since Antiquity as a weapon against ships—by Syracuse against invading Athenian ships; by Carthage against Rome; by Octavian against Antony and Cleopatra. The mysterious "Greek fire," mentioned in many ancient sources, was propelled by a flame thrower of sorts. More commonly, however, fires attacks consisted of putting a ship ablaze and setting it on a course toward stationary enemy vessels. The result was truly a terror weapon, the sight of which caused sailors to panic and not infrequently led an enemy to retreat from battle.

The so-called *fireship* is the subject of German scholar Peter Kirsch's second book on the designs and uses of ships through history. A welcome complement to *The Galleon*, first published in 1998 in German, British, and American editions, *Fireship* chronicles Dutch, British, Spanish, and French naval battles from the 16<sup>th</sup> through the 19<sup>th</sup> centuries. It is well-researched, ably documented, and includes an extensive bibliography. Individual chapters focus on Chinese fireships; fireship designs; fuses and armaments on fireships; fireship battle tactics; and fireships in the New World. For many readers, perhaps the most impressive and valuable aspect of the book will be its many illustrations and drawing, which include paintings of sea battles made by eyewitnesses; portraits of battle participants; battle maps; drawings of pumps, fuses, and bombs; and, most notably, diagrams of the interiors of fireships.

Kirsch is a model maker, and his book serves not only as a fascinating history of this terror weapon, but also as a technical treatise on the way fireships were acquired, fitted out, and then used in battle. Their construction included gutters below decks to hold flammable, oily mixtures. Chimneys extending through the deck ensured initial ventilation to turn the ship's interior quickly into a raging hell. Many and varied grid-like structures and fire-spreading gutters ran to the gun ports, which were hinged at the bottom instead of at the top, allowing them to blow open as the fire spread and thus supply the fire with additional air for combustion.

Kirsch's absorbing narratives of fireship battles demonstrate that that sometimes these ships were effective weapons, and sometimes not. For example, a most dramatic attack occurred in 1585 outside Antwerp. The Spanish Duke of Parma had built a wooden "bridge" out of boats and rafts across the River Scheldt to cut Antwerp off from the sea. The citizens of Antwerp attacked these siege works several times with fireships loaded with explosives and ingenious, clockwork fuses. All these attempts failed, causing some of the citizens of Antwerp to object to further, expensive attempts. Finally, a fireship reached the "bridge" and exploded, blasting a 60-meter-long hole in the bridge and killing over 800 Spaniards. Bodies and parts later were found in ships' rigging and hanging from bridge pilings. Kirsch quotes Friedrich Schiller, who wrote, "masts, cannon and men all went sky-high" (p. 21). Although the Duke of Parma was able to repair the bridge and to hold all of the southern Netherlands, "the horrendous effect of the blast made such an impression on contemporaries that for a century afterwards, the approach of a burning ship summoned up fears that an explosion was imminent" (p. 19).

The Spanish Armada suffered mightily from fireship attack. Just three years after Antwerp, the English fleet defeated the Armada at the Battle of Gravelines, thanks to Spanish panic at seeing fireships approaching. The fleet was at anchor when a British fireship drifted close to the flagship, the San Martin. The captain-general ordered the ship to move out of the path of the fireship, and then to re-anchor in the same spot. Unfortunately, sailors and captains aboard other ships saw their supreme commander raising his anchor, and they assumed that he was fleeing the fireship. Possibly, they thought it was about to explode. "The iron discipline of the Armada, which had so far held, finally broke down," writes Kirsch (p. 40). Many captains, he writes, just cut their anchor lines, and 120 anchors were lost. A northwest wind then blew up, making these night maneuvers extra dangerous as the fleet drifted toward the French coast. The battle the next day, which famously involved Francis Drake's *Revenge*, killed 1,000 Spanish men and sank three Spanish ships, but it was the northwest wind that finally forced the Spanish to sail for home by heading northwards all the way around Scotland and Ireland and so back to Spain. Thus, the panic caused by their fireships helped the British to defeat the Armada in 1588.

Fifty years later, Spain lost a fleet of galleons to French fireships at Guethary in 1638 with a loss of 4,000 men, and then in 1639 the Dutch burned 40 of the Armada's 53 ships at the Battle of the Downs. One of the lost ships was the *Santa Teresa*, "the finest ship in the Spanish fleet," which exploded when the fire reached her powder magazine, killing 800 of the 1,000 men aboard, including the captain.

Kirsch's book continues through the Anglo-Dutch wars of the seventeenth century and the wars between England and France of the eighteenth century, and finally on to the early nineteenth century and the Napoleonic wars. He recounts and illustrates the development of the line of battle and the invention of machines and incendiaries associated with fireships. Indeed, Kirsch writes a very good general history of naval warfare, but with his focus always on the fireship. It ends with a brief chapter on Operation Chariot, during which a British force of 630 men rammed the *Campbeltown* into the Normandie dock at St. Nazaire in 1942. The ship was rigged to explode, and when it did, it destroyed the only dock in the Atlantic large enough to service the biggest German ships such as the *Tirpitz*, keeping them in northern waters. Kirsch closes his book by commenting on the attack on the USS *Cole*, at Aden in 2000, saying that the modern warship is still vulnerable to surprise attack, especially when the attackers are willing to seek martyrdom. "It is an old idea," writes Kirsch, "revived with a vengeance" (p. 243).



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