NAVAL WARFARE
1815–1914

Lawrence Sondhaus
Naval Warfare, 1815–1914

From the era of Napoleon and Lord Nelson to the Anglo-German naval race before the First World War, naval warfare underwent a slow transition from the age of the wooden sailing fleet to the modern steel navy. *Naval Warfare, 1815–1914* covers major clashes such as the Crimean War and American Civil War, as well as lesser-known regional conflicts, colonial empire-building and exercises in “gunboat diplomacy”.

The greatest coverage is given to the leading naval powers, including the rise of the German, Japanese and American navies towards the end of the era. In addition, *Naval Warfare, 1815–1914* also includes accounts of lesser-known conflicts, such as those during the Latin American wars for independence, for which there are no readily available English-language accounts.

The technological breakthroughs of steam power, armor, artillery and torpedoes that brought changes not only to warship design, but also to naval strategy and tactics are fully surveyed, and the rivalries of the naval powers, their wars and expeditions are considered with special attention to the evolving state of naval technology. It is this relationship between the industrialization of a country and the advancement of its naval strength which is a key to understanding this important period of world history.

*Naval Warfare, 1815–1914* is a concise overview of global naval developments between the Napoleonic era and the First World War and will be invaluable to students and enthusiasts alike.

**Lawrence Sondhaus** is Associate Professor of History at the University of Indianapolis. He is author of five books including *Preparing for Weltpolitik: German Sea Power before the Tirpitz Era* (Naval Institute Press, 1997) and two volumes on the Austrian navy.
Warfare and History
General Editor
Jeremy Black
Professor of History, University of Exeter

Air Power in the Age of Total War
John Buckley

The Balkan Wars, 1912-1913: Prelude to the First World War
Richard C. Hall

European and Native American Warfare, 1675-1815
Armstrong Starkey

European Warfare, 1660-1815
Jeremy Black

Frontiersmen: Warfare in Africa Since 1950
Anthony Clayton

German Armies: War and German Politics, 1648-1806
Peter H. Wilson

The Great War 1914-18
Spencer C. Tucker

Israel’s Wars, 1947-1993
Ahron Bregman

The Korean War: No Victors, no Vanquished
Stanley Sandler

Ottoman Warfare, 1500-1700
Rhoads Murphey

Seapower and Naval Warfare, 1650-1830
Richard Harding

The Soviet Military Experience
Roger R. Reese

Vietnam
Spencer C. Tucker

The War for Independence and the Transformation of American Society
Harry M. Ward

Warfare and Society in Europe, 1792-1914
Geoffrey Wawro

Warfare at Sea, 1500-1650
Jan Glete

Warfare in Atlantic Africa, 1500-1800: Maritime Conflicts and the Transformation of Europe
John K. Thornton

Warfare, State and Society in the Byzantine World, 565-1204
John Haldon

Wars of Imperial Conquest in Africa, 1830-1914
Bruce Vandervort

Western Warfare in the Age of the Crusades, 1000-1300
John France

Naval Warfare 1815-1914
Lawrence Sondhaus
Naval Warfare, 1815–1914

Lawrence Sondhaus
Contents

List of plates vi
Preface vii

1 The twilight of sail, 1815–30 1
2 Continuity and change, 1830–50 27
3 The 1850s 55
4 The ironclad revolution 73
5 The 1870s 108
6 The Jeune École 139
7 The rebirth of the battleship 160
8 The dreadnought and the origins of the First World War 197
9 Reflections on deterrence 225

Bibliography 230
Index 237
List of plates

Plate 1.1 Fulton’s Demologos (1813 preliminary design) 19
Plate 2.1 HMS Thunderer (left) and Austrian frigate Guerriera (center) in allied attack on Sidon (26 September 1840) 34
Plate 3.1 HMS Agamemnon in the bombardment of Sevastopol (17 October 1854) 60
Plate 4.1 HMS Warrior (laid down May 1859, completed October 1861) 75
Plate 4.2 CSS Virginia and USS Monitor, Battle of Hampton Roads (9 March 1862) 79
Plate 4.3 HMS Captain (laid down January 1867, completed January 1870) 86
Plate 4.4 Austrian screw ship of the line Kaiser, the day after engaging Italian ironclads at the Battle of Lissa (20 July 1866) 95
Plate 5.1 HMS Amethyst (left background) and HMS Shah engage the Huáscar in the Bay of Pacocha (29 May 1877) 116
Plate 5.2 French composite corvette Éclaireur (laid down 1874, completed 1879) 118
Plate 6.1 Protected cruiser HMS Blake (laid down July 1888, completed February 1892) 144
Plate 7.1 USS Maine entering Havana harbor, 25 January 1898 174
Plate 8.1 HMS Dreadnought (laid down October 1905, completed December 1906) 200
From the era of Napoleon and Lord Nelson to the naval arms races before the First World War, naval warfare underwent a slow transition from the era of the wooden sailing fleet to that of the modern steel navy. Certain developments during the century of change are fairly well known to scholars and students of history, such as the emergence of the “monitor” design in the American Civil War and the “dreadnought” battleship during the eight years before the First World War. Yet, for most, the evolution of warships and naval warfare from 1815 to 1914 (or at least to 1906) remains shrouded in mystery, along with most of the naval engagements of the period.

This study will attempt to leave the reader with a better appreciation of the technological breakthroughs in steam propulsion, armor plate, artillery, and torpedoes that brought changes not only to warship design, but also to naval strategy and tactics. The rivalries of the naval powers, their wars and expeditions, will be investigated with special attention to the evolving state of naval technology. The three leading naval powers of the century – Britain, France, and Russia – naturally will receive the greatest coverage, but the study will also address the decline after 1815 of the Spanish and Dutch navies, as well as the rise before 1914 of German, Japanese, and American sea power. Smaller navies such as the Italian and Austrian, which in 1866 fought the only fleet-scale action of the century between 1805 and 1905, will receive attention where appropriate, along with the navies of the Ottoman empire, China, and the leading South American countries.

The task of writing a general history of this length compels the author to make hard choices as to what not to include, as it is, of course, impossible to provide exhaustive coverage of the entire period. The mandate being one of writing a work on naval warfare, discussion of matters related to naval personnel, including comparisons in training, education, promotion policies, and so forth, has been reduced dramatically or omitted altogether, unless it has such a direct bearing on the performance of a navy in war as to warrant inclusion as part of the explanation of the outcome of that conflict. Description of factors in the economy, indus-
try, domestic politics, and international diplomacy bearing upon naval developments likewise has been kept to the minimum necessary to orientate the reader. An effort has been made to include summary narratives of those naval campaigns – for example, during the Latin American Wars for Independence – for which there are no published English-language accounts, or at least none readily available to the reader of today. In the same spirit, relatively fewer pages have been devoted to aspects of the period already well covered in the Anglo-American literature.

I would like to thank Professor Jeremy Black, general editor of the Warfare and History series, for giving me the opportunity to write this volume, and for his support and encouragement over the years. I am grateful to the interlibrary loan staff of Krannert Memorial Library at the University of Indianapolis for processing my many dozens of requests promptly and efficiently. I owe a great debt of gratitude to Jack Green of the Curator Branch, Naval Historical Center, Washington, DC, for his help in securing the photographs. Of course, in a work of this nature almost any number of illustrations would be inadequate. For warship profiles and more detailed technical specifications, readers are advised to consult Conway’s All the World’s Fighting Ships, volumes for 1860–1905 (London, 1979) and 1906–21 (London, 1985), which are the source for technical data except where overruled by more specialized works on individual navies.

I dedicate this book to my son, Paul, whose first weeks of life coincided with the final preparation of the manuscript.
CHAPTER ONE

The twilight of sail, 1815–30

Contrary to popular belief, Napoleon Bonaparte’s naval challenge to Britain did not end with Lord Nelson’s victory at the Battle of Trafalgar (1805). Indeed, during the last decade of the Napoleonic Wars, an ambitious French shipbuilding program drove the British to construct unprecedented numbers of ships of the line and frigates in order to maintain a safe margin of superiority. When the fighting ended in 1815, the British and French navies had many more warships than they needed for peacetime, but many had been hastily constructed from unseasoned timbers and would have short service lives. Both countries also had a backlog of warships on the stocks, many of which would remain there for years until being finished or scrapped. Because Napoleon had attempted to mobilize the resources of the shipyards in his satellite kingdoms, beyond Britain and France the maritime countries of postwar Europe inherited a variety of warship projects, built and building, in yards from the Baltic to the Adriatic. Meanwhile, across the Atlantic, the United States – the only naval power beyond Europe – after 1815 proceeded with a naval program begun during the War of 1812 against Britain.

By the time of Trafalgar some of Nelson’s ships of the line (Victory included) had seen forty years of service, reflecting the relative lack of innovation in battleship building during the preceding decades. Throughout the years 1815–30 the wooden sailing ship still ruled the waves, and the wooden ship of the line underwent improvements which prompted the leading navies to consider the traditional third-rate vessel of 74 guns no longer fit for the line of battle. At the same time, most navies acquired their first steamships, and some visionaries prophesied a day in which the capital ships of a fleet would move by steam. The development of the first shell guns likewise led some to question the future viability of wooden ships in close action or against coastal fortifications.

The sailing fleets after 1815

Assessing the numerical strength of any sailing fleet after 1815 is problematic, as different sources provide a variety of figures for each ship type. Even in Britain the navy list included a number of ships so old or in such disrepair that they could not have put
to sea under any circumstances. Further confusion arises when the researcher attempts to evaluate the condition of ships ostensibly on the active list, to include or exclude ships in reserve ("in ordinary") or still on the stocks, or the receiving ships and other vessels disarmed for auxiliary duties. By the most generous estimate, in 1815 the British navy had 218 ships of the line, 309 frigates, and 261 sloops or brigs, but at least one recent source gives figures barely half as high. In 1830, when Britain had 106 ships of the line, only seventy-one were considered "in good order" and fit for service.\textsuperscript{1}

In the immediate postwar years the British foreign secretary, Viscount Castlereagh, called for the British navy to remain superior to the combined force of the next two naval powers, France and Russia. In addition to the need for vigilance against a possible Franco-Russian alliance, in the dawning era of the Pax Britannica the navy needed forces sufficient to police the world's oceans in support of the moral and legal positions Britain had taken and was persuading others to take. These included stopping the slave trade, which the British parliament in 1807 had abolished throughout the empire, and keeping commercial sea lanes safe against piracy, which had flourished, especially in Mediterranean waters, during the Napoleonic Wars. Yet the official peacetime standard of the British navy after 1815 did not take into account the strength of any other fleet or the forces needed to pursue any particular policy. It was the same as that of 1792, the last prewar year: 100 ships of the line and 160 frigates. At least on paper, Britain had a navy twice as large as it needed for peacetime service. Hundreds of officers and thousands of seamen were furloughed, while the rapid deterioration of ships hastily built during the war years forced the fleet to shrink dramatically, at a time when relatively few new ships were being launched. By 1820 Britain had 146 ships of the line and 164 frigates. A decade later the force had dwindled to 106 ships of the line and 144 frigates; the latter figure fell significantly below the peacetime standard, despite the fact that some third-rate (74-gun) ships of the line had been cut down and converted to fourth-rate (50-gun) "razee" frigates.\textsuperscript{2}

Between 1815 and 1849, the British navy launched a total of fifty-eight new ships of the line. Eleven were launched in 1815 and 1816 alone; these, and another ten completed by 1828, were under construction when the Napoleonic Wars ended. In the postwar era the 120-gun three-decker and the 84-gun two-decker were the most popular designs. The 74 came to be considered unfit for the line of battle, and Britain launched its last vessel of the type, the *Carnatic*, in 1832. The postwar construction program, under covered slips and using seasoned, salt-treated lumber, produced ships that lasted a half-century or more without significant dry rot. Years of accelerated wartime construction left British navy timber stocks seriously depleted by 1815, but contrary to a long-accepted myth there remained plenty of oak forests in the British Isles. The needs of civilian shipbuilders and other domestic consumers forced up the price of British oak, however, making foreign timber less expensive for the navy. British shipyards imported Italian oak as well as Indian and African teak, and the East India Company continued its earlier practice of building teak warships for the navy in Indian
shipyards. After the Napoleonic era, Indian construction projects included seven ships of the line completed at Bombay and one at Calcutta. The last of the Bombay ships was the 80-gun *Meeanee*, launched in November 1848 as the last British sailing ship of the line.3

The British navy’s declining numbers of larger warships more than sufficed to keep it ahead of potential rivals. France acknowledged that it had no hope of mounting a battle fleet challenge against Britain and made no effort to do so. In 1815 France had sixty-nine ships of the line, and, by 1830, just fifty-three. As early as 1819 only thirty-one were considered fit for duty. In case of war the French planned to rely on a commerce raiding *guerre de course* and challenge the British worldwide with frigates. During the years 1815–30 a program of frigate construction raised the total of that type from thirty-eight to sixty-seven, still barely half the British total. King Louis XVIII attempted to place royalists in charge of the postwar navy, but Napoleonic veterans quickly regained control. An investigation of the stranding of the frigate *Méduse* on the coast of West Africa in 1816 exposed the incompetence of its captain—a former royalist exile who had not been to sea in a generation—and prompted the dismissal of hundreds like him whose commissions had been recently restored.4

Russia emerged from the Napoleonic Wars as the dominant Baltic naval power, with the third-largest battle fleet overall. The Russian navy did not follow the British and French pattern of growing in size after 1800, then declining dramatically after 1815. Instead, the Russian fleet peaked at the turn of the century, at over eighty ships of the line and forty frigates—figures second only to the British—then declined by the end of the war to an active strength of no less than forty-eight ships of the line and twenty-one frigates, a level of strength maintained into the postwar years. In 1830 the Russians had at least forty-seven ships of the line and twenty-six frigates, with roughly two-thirds of each type stationed in the Baltic and the remaining third in the Black Sea.5 In contrast to the French, the Russians did not embrace the *guerre de course* as a strategy in the event of war with Britain. As early as the 1830s, almost a half-century before summer maneuvers became customary for all navies, the Russians mobilized unusually large fleets every summer in both the Baltic and the Black Sea. It was almost as if the navy wished to use its ships before they deteriorated, which happened fast enough to hulls built primarily of fir. Ships of the line and frigates built of fir typically lasted only eight to ten years, although the Russian navy often sought in vain to keep vessels seaworthy long beyond that.6

The War of 1812 against Britain instilled a great sense of confidence in the United States and its navy. Victories of the *Constitution* and other formidable American frigates in ship-to-ship actions against smaller British frigates stirred patriotism and created a new generation of heroes, overshadowing the fact that between 1812 and 1815 the British navy had all but destroyed US overseas trade, attacked or blockaded every important American seaport, landed a force which burned the newly constructed capital city, Washington, and destroyed roughly half of the US navy, including five
In 1813 the US Congress authorized the construction of six ships of the line. Five had been laid down by March 1815, when word arrived that the Treaty of Ghent (24 December 1814) had ended the war with Britain. Only one, the Independence, was completed before the war ended; it served from the summer of 1814 to the end of the war as a harbor watch in Boston. In 1816 the Congress authorized nine ships of the line to supplement the five laid down during the War of 1812. Of the total of fourteen begun between 1813 and 1822, seven eventually served as warships, three only as receiving or store ships. The remaining four were never completed.

At least until the mid-1820s, when the French navy revived sufficiently to attract British attention, the Admiralty considered the US navy its principal future rival. But the American ships of the line, unusually heavily armed, were valued primarily as blockade breakers in case of war with a greater naval power and, as such, spent most of their days in reserve at Boston, New York, and Norfolk. Except for a brief hiatus in 1830–33, at least one was in active service at any given time, yet the seven combined spent just forty-seven years in commission. The largest American ship of the line, the three-decker Pennsylvania, was launched in 1837 after sixteen years on the stocks, spent five years in reserve, then became a receiving ship at Norfolk. The first battleship, the Independence, served continuously from 1814 to 1822, then remained in reserve until 1836, when it was cut down to a 56-gun razee frigate. As such it was far more useful to the US navy, which relied on frigates and sloops to cover its foreign stations. The navy ended the War of 1812 with nine frigates, ranging in displacement from the 2,200-ton Constitution (50 guns) to the prizes Macedonian and Cyane, the latter formerly a British sloop of 540 tons, armed with 32 guns in American service. During the next forty-five years twenty sailing frigates served in the fleet, with no more than eleven being on the navy list at any given time. The old Constitution and United States were repaired repeatedly and kept in service, and starting with the Potomac (launched 1822), new frigates were modeled after them, displacing over 1,700 tons and carrying 50 guns. Although American leaders were loath to admit it, after 1815 British and American interests usually coincided, and the United States had no complaint with the Pax Britannica. Border disputes in Maine and Oregon ultimately were resolved by treaty in the 1840s, far short of war, meanwhile, the shared values and ideals of the two countries were reflected in their deployment of naval forces against the slave trade and piracy, and in their common front against the reimposition of colonial rule in Latin America. A British overture for a joint declaration on the latter question prompted the United States to issue its own unilateral statement, the Monroe Doctrine of 1823, which reflected both the American government’s agreement with the British position and the political necessity, in the wake of the War of 1812, to maintain the appearance of a foreign policy independent of Britain’s.

* In most cases, displacement figures will be rounded off to the nearest 10 tons.
At the beginning of 1815 Spain had the world's fourth-largest battle fleet with twenty-one ships of the line. The newest of these were four French vessels captured by Spanish loyalists at Cadiz in 1808; Spain had not built a ship of the line of its own since 1798, and still counted in its total three that dated from the 1750s. After 1815 the US navy easily surpassed the Spanish, as Spain went more than a half-century without laying down a ship of the line. In 1818–19 Tsar Alexander I sold five ships of the line and six frigates to Spain for use in the effort to reconquer the rebellious states of Latin America, but their rotten fir hulls made them a poor bargain. All of the battleships were stricken within four years, and only one of the frigates, the 50-gun María Isabel, ever made it to the New World. Counting the Russian purchases, Spain had fifteen ships of the line in 1820, but the number dwindled to four by 1830 and just two a decade later. The number of Spanish frigates fell from fifteen in 1815 to five in 1830.10

The minor northern European naval powers likewise did not attempt to maintain formidable battle fleets after 1815. The Dutch navy of 1815 included nineteen ships of the line, some inherited from Napoleon's shipbuilding efforts at Antwerp, but fifteen years later just five remained. The Netherlands had a large merchant marine, a global trading presence, and a colonial empire in the East Indies, and thus maintained a respectable fleet of frigates – fourteen in 1815, seventeen in 1830 – for cruising duties. Sweden had thirteen ships of the line and seven frigates in 1815, eight ships of the line and five frigates in 1830. In the immediate postwar years Denmark still suffered the effects of having had its navy twice destroyed by Britain (in 1801 and again in 1807) during the Napoleonic Wars, but by 1830 the Danish navy had been rebuilt to a strength of three ships of the line and seven frigates.11 Both Sweden and Denmark considered Russia their most likely future adversary and developed elaborate coast defense systems, including dozens of small one- and two-gun boats that could be either rowed or sailed, on the model of the oared gunboats used by Denmark against Britain after the destruction of the Danish battle fleet in 1807. After 1815 King Frederick William III and some of Prussia's leading military men favored the creation of a Prussian navy, but until the early 1840s the country's largest armed vessel was a lone schooner employed mostly as a training ship for the merchant marine academy at Danzig.12

Among the minor Mediterranean naval powers, the Ottoman empire after 1770 had rebuilt its navy along European lines, with the help of foreign (mostly French) shipbuilders. By the end of the reign of the pro-navy Sultan Selim III in 1806, the Turkish fleet included twenty ships of the line and fifteen frigates. Naval conscription in the Aegean region brought a large number of Greeks into service aboard the sultan's warships, but after 1821 the Greek War for Independence brought an end to this practice.13 In North Africa the Muslim rulers of Morocco, Algiers, Tunis, Tripoli, and Egypt, although nominally vassals of the Ottoman sultan, maintained their own naval forces, some of which had taken advantage of the Napoleonic Wars to engage in a lucrative piracy. None had a warship larger than a frigate. In 1814 Austria inherited the predominantly Venetian navy of the Napoleonic kingdom of Italy, including ten ships
of the line and eight frigates built or building. Under the direction of Prince Clemens von Metternich, the financially strapped Habsburg government sought to sell most of this fleet, but found no buyers. By 1830 eight of the ships of the line had been broken up or burned in dockyard accidents; the remaining two were commissioned as razee frigates. Meanwhile, all eight of the frigates eventually were commissioned but no more than four served at any given time. Those still on the stocks in 1815 were not completed until needed as replacements for their sister ships, the most extreme example being the 44-gun *Venere*, laid down in 1813 and launched in 1832, which served (after 1849 as *Venus*) until 1860.14 Between 1815 and 1830 the leading Italian kingdoms far surpassed Austria in naval power. Thanks largely to warships inherited from the regime of Napoleon’s brother-in-law Joachim Murat, the Neapolitan navy of 1815 had two ships of the line and six frigates. In the immediate postwar years Sardinia–Piedmont had no warship larger than a 20-gun corvette, but under the patronage of King Charles Felix and the direction of Admiral Giorgio Des Geneys the Sardinian navy grew by 1829 to include eight frigates, among them three powerful 60-gun warships.15

**North African piracy and southern European revolutions**

Having acted decisively against North African piracy a decade earlier, the United States was the first country after the return of general peace in 1815 to deploy naval forces against the so-called “Barbary” pirate states. In June 1815 Captain Stephen Decatur's frigates *Guerriere* and *Constellation* defeated the Algerian frigate *Mashuda*, the most powerful warship on the North African coast, then dictated a peace under which the Bey of Algiers agreed to pay compensation for earlier acts of piracy against American merchantmen. The following month Decatur proceeded to Tunis and, in August, to Tripoli, both of which capitulated without resistance, completing the mission before Commodore William Bainbridge arrived in the Mediterranean with a much larger force led by the ship of the line *Independence*. A late-summer rendezvous at Gibraltar included Bainbridge’s flagship, five frigates, and a dozen smaller warships, the greatest American fleet ever assembled in European waters up to that time. The show of force marked the onset of an American naval presence in the Mediterranean uninterrupted until the outbreak of the Civil War in 1861.16

The following summer the British sent a far more powerful fleet to the North African coast, consisting of five ships of the line, five frigates, seven sloops and four bomb vessels, supplemented by a Dutch force of five frigates and one corvette, all under the command of Admiral Edward Pellew, Lord Exmouth. Britain had hoped for broader international participation but at least one other country, Austria, declined the invitation to participate because of the cost. Exmouth’s attack on Algiers in August 1816 may be considered the first exercise of the postwar Pax Britannica. Historian
Andrew Lambert has called it “a spectacular reassertion of power in support of European ideals.” In a nine-hour action the Anglo-Dutch force destroyed the Algerian fleet at anchor, silenced shore batteries, and bombarded the city, prompting the Bey of Algiers to accede to allied demands the following day. The allies lost no ships, but their crews took over 800 casualties. Following the same itinerary as Decatur the previous summer, Exmouth proceeded to Tunis and Tripoli, which likewise capitulated.17 The North African pirate states traditionally had profited from the slave trade as well, their leading ports being the northern termini of centuries-old caravan routes that crossed the Sahara from Timbuktu and other northern outposts of black Africa. This, too, violated values promoted by the British and embraced by Europeans in general, and in 1819 a squadron called at Algiers, Tunis, and Tripoli to persuade local leaders to suppress the slave trade. In the first case of postwar Anglo-French naval cooperation, France contributed a ship of the line and a frigate to this British operation.18

By the 1820s the leading naval powers and the Netherlands no longer had to worry about North African corsairs attacking their merchantmen, but the lesser maritime states were not so fortunate. Even though Exmouth’s 1816 expedition had secured promises of good behavior vis-à-vis the merchantmen of weaker states, such as Naples, that were not represented in the allied fleet, the North Africans took those commitments less seriously. Ships flying the flags of the Italian states and Austria were especially vulnerable, and the depredations continued until the victims mustered the naval force to confront the pirates. Even then, the first expeditions of the Italian navies hardly inspired fear among the North African states. Des Geneys led Sardinian squadrons against Morocco in 1822 and Tripoli in 1825, with little success, and in 1825 a Neapolitan expedition to Tripoli failed so miserably that Naples subsequently had to pay a tribute double the previous rate.19 Austria fared somewhat better. In the summer of 1828 Morocco abrogated an earlier treaty and seized a merchant brig, prompting the Habsburg government to send Captain Francesco Bandiera to the Moroccan coast with two corvettes, a brig, and a schooner. After a landing party located and freed the crew of the captured brig, in July 1829 Bandiera bombarded the port of El Araisch (Larache). Reinforced with a frigate, Bandiera remained offshore until the autumn of 1830, when the sultan of Morocco agreed to reinstate the broken treaty.20 Taking heart from the Austrian success, in 1833 Sardinia–Piedmont and Naples concluded a five-year alliance against the North African menace. That spring they deployed a joint squadron led by one Neapolitan and three Sardinian frigates, which forced Tunis to pay compensation for attacks on Sardinian merchantmen. In 1834 a squadron of three Neapolitan warships secured a great reduction in the tribute paid to the sultan of Morocco.21

During the same years the leading powers failed to adopt a common policy to deal with a wave of liberal revolution, even though under the Concert of Europe all had made solemn commitments to preserve the order established at the Congress of
Vienna (1814–15). In the first months of 1820 constitutionalist uprisings challenged absolute monarchies in Spain, Portugal, and Naples, and, the following March, in Sardinia–Piedmont as well. Britain, sympathizing with movements in favor of constitutional monarchy, interpreted its Vienna obligations to include only the preservation of national borders, not necessarily the governments within them, while Metternich’s bloc of eastern absolute monarchies – Austria, Russia, and Prussia – considered the commitment also to include preservation of the systems of government. The eastern powers clamored for military intervention but Britain would have no part of it, and in the case of Portugal deployed warships to deter any attempt by continental armies to march on Lisbon. The other three revolutions were crushed in the name of the Concert, or at least the Concert minus Britain. In March 1821 an Austrian army routed a Neapolitan rebel army and occupied Naples. The Austrian navy was supposed to support the invasion but its two active frigates made it only halfway down the Adriatic, as far as the island of Lissa, where the Neapolitan ship of the line Capri and a frigate blockaded them until word arrived that the Austrian troops were in the city of Naples. During the Austrian march on Naples, revolution broke out in Sardinia–Piedmont. With an eye toward blockading Genoa, the Austrian government authorized the arming of two of the ships of the line then idle at Venice, but the plans were cancelled after Austrian troops easily crushed the revolt in April 1821.22 The liberal regime in Spain survived longer, until a France eager to return to full participation in the affairs of Europe volunteered to intervene there in the name of the Concert. The French army crossed the Pyrenees in April 1823, met with little opposition, and took Madrid a month later. After the liberal Cortes fled to Cadiz, taking King Ferdinand VII along as hostage, three ships of the line and ten frigates under Rear Admiral Guy Duperré blockaded the port until French troops arrived to lay siege to the city. Unlike in neighboring Portugal, here the British chose not to deploy warships in solidarity with the constitutionalist cause. In September the last of the rebels surrendered, and the French restored Ferdinand VII to absolute power.23

The Latin American Wars for Independence

In 1808 Napoleon conquered Spain and installed his brother Joseph Bonaparte as king in Madrid, providing the country’s American colonies with a convenient excuse to declare independence: they no longer had a legitimate king. By the time King Ferdinand VII was restored to power in 1814, some Latin American republics already were in their fourth year, supported by merchants and landowners glad to be rid of Spanish mercantilism. In the vacuum created by the wartime collapse of the Spanish navy and merchant marine, Britain dominated trade with the region and, along with the United States, opposed efforts to restore Spanish colonial rule. After 1815 only Alexander I of Russia lent more than moral support to Ferdinand’s attempt to recapture the colonies,
and of the eleven warships he sold to Spain just one made it to the New World. Spain's 
liberal revolution of 1820–23, coinciding with the last years of the Latin American Wars 
for Independence, all but guaranteed the failure of its efforts to retain its mainland 
American colonies.

Naval power played almost no role in the initial fighting after the revolutions of 1810. 
Local patriots engaged Spanish garrisons and local royalists in relatively small battles. 
Spain's makeshift naval presence included armed merchantmen and privateers 
commissioned by the viceroy in Peru, a royalist stronghold; several of the new republics 
likewise issued letters of marque and armed some merchant vessels. The first naval 
action on the Pacific coast came in May 1813, when the Peruvian corsair Warren 
blockaded Valparaíso, a port defended by the Chilean armed merchantmen Perla and 
Potrillo. Spanish merchants in Valparaíso persuaded the officers and men of the Perla to 
defect to the royalists, and at the onset of the ensuing battle the Perla joined the Warren 
in forcing the Potrillo to surrender. Spanish forces then occupied Valparaíso and used it 
as a base to supply their reconquest of Chile.24 In exile across the Andes in Argentina, 
bitter Chilean patriots were impressed with their need for a navy and convinced that, to 
operate it, hired foreigners would be more trustworthy than veterans of the Spanish 
navy or merchant marine.

The Argentinians subsequently commissioned a small navy led by William Brown, a 
former officer of the British navy. In the summer of 1815–16 Brown took two corvettes 
and two smaller warships around Cape Horn and up the Pacific coast, attacking Callao 
and Guayaquil. He did little real damage, but did demonstrate the vulnerability of 
Spanish commerce and communications. In the summer of 1816–17 generals José de 
San Martín and Bernardo O'Higgins crossed the Andes with an Argentinian–Chilean 
army that defeated the Spanish at Chacabuco in February 1817, opening the way for the 
restoration of the republic in Chile under the presidency of O'Higgins. On the field at 
Chacabuco, O'Higgins remarked that “this triumph and a hundred more will be 
insignificant if we do not control the sea.” He soon sent agents to Britain and the United 
States, countries where the return to a peacetime footing after 1815 left naval personnel 
seeking employment abroad.25

By 1818 hundreds of foreign seamen had entered Chilean service, many of them 
aboard ships purchased for the new navy. These included a corvette, two brigs, and the 
former British East Indiamen Cumberland and Windham, refitted as the 60-gun ship of 
the line San Martín and 46-gun frigate Lautaro, respectively. To command the navy a 
Chilean agent hired Thomas, Lord Cochrane, later 10th Earl of Dundonald, a 
decorated veteran British officer living in exile in France after being disgraced in a stock 
market scandal in 1814. Cochrane left for Chile in August 1818, three months after the 
former Russian frigate María Isabel left Spain for Chile at the head of a force including 
eleven transports carrying 2,000 troops. The Chileans received word that the Spanish 
reinforcements were on the way and resolved to interdict their convoy rather than wait 
for Cochrane to arrive. Command of the Chilean squadron went to Manuel Blanco
Encalada, a 28-year-old artillery officer from Buenos Aires who had served the previous seven years in the armies of Argentina and Chile. O’Higgins appointed him because he had been an ensign in the Spanish navy for four years before that, and thus had more naval experience than any other patriot officer. In October 1818 he left Valparaíso with the five warships, to search the seas for the approaching Spanish force. The *María Isabel* managed to evade him, making it through to the port of Talcahuano with two transports, only to be trapped there on 27 October by Blanco’s flagship *San Martín*, to which the Spanish frigate surrendered after a brief duel. The remaining Spanish transports were captured as they struggled in, completing the triumph.26

Thus Chile was secure by the time Cochrane took over the navy, in December 1818, with the rank of vice admiral. Blanco agreed to become his subordinate as rear admiral, impressing Cochrane with his “patriotic distinterestedness” in the matter of command. They turned their attentions to an assault on royalist Peru, which had to be conquered to secure the independence of both Chile and Argentina. Because the coastal Atacama Desert separating Peru from Chile posed an obstacle more formidable than the Andes, naval power was essential to transport the patriot army northward for the attack. First, however, Cochrane had to establish Chile’s command of the sea off the western coast of the continent. In the summers of 1818–19 and 1819–20 he imposed blockades on Callao and seized Spanish–flagged ships on the high seas, using the captured *María Isabel* (renamed *O’Higgins*) as his flagship. But the Spanish were more afraid of the *San Martín*, the only ship of the line in the theater; they refused to come out of Callao to fight, even though the two navies had equal numbers of frigates and smaller warships. In May 1819 Spain dispatched two ships of the line and a frigate as reinforcements, but only the frigate made it to Callao. The leaky *Alejandro I*, formerly a Russian battleship, had to turn back to Cadiz, and the *San Telmo* was lost with all hands in a storm off Cape Horn. Further additions to the Chilean navy included a corvette built in the United States, two more brigs and a schooner. In February 1820 Cochrane briefly turned his attention to Valdivia, a Spanish outpost in southern Chile, which he captured with the *O’Higgins*, a brig and a schooner, in the process losing the brig.27

The invasion of Peru finally began in late August 1820. Cochrane, in the *O’Higgins*, led a force of one ship of the line, two frigates, one corvette, three brigs, and one schooner, escorting seventeen transports carrying San Martín and 4,000 troops. The fleet included every available Chilean warship less one corvette, which was deployed to keep watch over the last royalist stronghold in the south, the island of Chiloé. The Spanish squadron in Callao did nothing to challenge the Chilean landings. The frigates *Prueba* and *Venganza* departed before the invaders arrived, to avoid being blockaded, and the hopelessly outnumbered force they left behind suffered a crippling blow on 5 November 1820, when Cochrane captured the remaining Spanish frigate, the *Esmeralda*, in a bold raid on the harbor. The aggressive Cochrane clashed with the cautious San Martín throughout the campaign. Cochrane wanted the navy to assault Callao while the army marched on Lima, but San Martín preferred to negotiate his way
into the Peruvian capital. The viceroy in Lima finally agreed to an armistice in April 1821, and three months later San Martín declared himself “protector” of an independent Peru.28

Many years passed before Spain recognized the independence of any of the Latin American republics, and Cochrane correctly refused to consider the war ended, Rejecting San Martín’s offer to become admiral of a new Peruvian navy, he remained loyal to Chile and put to sea in search of the last significant Spanish warships in the eastern Pacific, the two frigates that had escaped capture at Callao the previous year. Several of Cochrane’s British officers and seamen declined to go with him and instead entered the service of Peru, in part because San Martín refused to pay them as long as they remained in Chilean service. After a pursuit of five months, ranging as far north as Baja California, in March 1822 Cochrane finally blockaded the Prueba and Venganza at Guayaquil. There the two frigates surrendered to local authorities loyal to San Martín and thus ended up in the Peruvian navy. The Prueba, renamed Protector, became the flagship of one of Cochrane’s former captains, George Martin Guise, now serving as Peruvian naval commander. Denied these ultimate prizes of war, in June 1822 Cochrane returned to Valparaíso with the remaining ships of the fleet. By then the Chilean navy showed the strains of years of continuous operations. The numerous desertions at the end of the campaign in Peru forced Cochrane to abandon the ship of the line San Martín, and a brig badly in need of repair was given up for lost. This left the fleet with a core of three frigates, three corvettes, and two brigs.29

Thereafter, Cochrane’s bickering over pay and prize money, combined with his refusal to take sides in domestic political intrigues, left him with few friends in Chile. In November 1822 he responded to an overture from Brazil: “The war in the Pacific having been happily terminated by the total destruction of the Spanish naval force, I am . . . free for the crusade of liberty in any other quarter of the globe.” As in the Spanish colonies, in Brazil the Napoleonic Wars had provided the context for independence. In 1807 King John of Portugal fled to Rio de Janeiro, then after the war declined to return to Lisbon. The liberal leaders of Portugal’s 1820 revolution insisted upon the return of the king, who complied in 1821, leaving behind his son, Dom Pedro, as regent of Brazil. Merchants and landowners who had prospered under a free trade policy granted in 1808 did not want a resumption of rule from Lisbon, and the regent astutely assumed leadership of their movement. In October 1822 an assembly in Rio de Janeiro proclaimed him Dom Pedro I, emperor of an independent Brazil. From the start the new regime had a powerful friend in Britain, which, despite its general support of the Lisbon revolution, did not want to see Brazil once again under Portuguese mercantilism. There, as elsewhere in Latin America, British merchantmen took full advantage of the weakening of Iberian colonial control, and by 1822 British ships handled half of Rio de Janeiro’s commerce.30

In a vast country where all population centers lay along the coast and the interior had no roads, naval force became the key to Dom Pedro I’s consolidation of power. He
formed a navy from Portuguese warships in Brazilian ports, which by November 1822 included three frigates, two corvettes, and two dozen smaller warships, but by January 1823 a frigate and a schooner had mutinied and made for Montevideo, then in Portuguese hands. While over 80 percent of Portuguese naval officers stationed in Brazil in 1822 declared their loyalty to the new regime, most of the common sailors had no desire to change allegiances. Their unreliability paralyzed the new navy and kept Dom Pedro from asserting authority over distant provinces, prompting him to follow the Spanish American example of hiring officers and seamen from friendly foreign nations, in particular Britain. Cochrane, taking command in March 1823, supplemented these with “several highly meritorious” British veterans of Chilean service who followed him to Brazil.31

Initially the northern provinces of Brazil remained loyal to the Portuguese, who established a royalist stronghold at Salvador da Bahia, 900 miles northeast of Rio de Janeiro. By the end of 1822 Portuguese naval forces there included the 74-gun ship of the line Dom João VI, one frigate, four corvettes, and several smaller warships. The Brazilians improved their chances against them by repairing an abandoned Portuguese ship of the line in the Rio de Janeiro naval arsenal. Cochrane used the 64-gun Pedro I (ex-Martim de Freitas) as flagship of a force of two frigates, two corvettes, and two brigs in an attack on Salvador, where he met with defeat on 4 May 1823, in part because of pro-Portuguese treachery aboard some Brazilian ships. Complaining that “one half of the squadron is necessary to watch over the other half,” Cochrane returned to Rio de Janeiro and put ashore his Portuguese-born sailors. They were replaced by Brazilians and hired foreigners, the latter arriving in ever-greater numbers. Cochrane then sailed back to Salvador and blockaded the port. On the night of 12 June he attempted a daring sortie into the harbor with the Pedro I, a frigate and a corvette. Calm winds foiled the attack, but Cochrane’s bravado intimidated the Portuguese naval and royalist leaders, whose confidence had been waning. In early July they abandoned Salvador and headed for home.32

Cochrane refused to let the Portuguese go in peace, preferring to deliver a crippling blow to ensure they would never return. Fortunately for the Brazilians the retreating squadron was preoccupied with a long convoy of troop transports and merchantmen, and in no shape to fight. With the Pedro I, two frigates, and two smaller warships, Cochrane harassed the retreating column, taking sixteen prizes and 2,000 prisoners. After the rest of the squadron returned to Brazil, the frigate Niterói took the war to the coast of Portugal, seizing another seventeen prizes between July and November 1823. Meanwhile, Cochrane and the rest of the navy ranged along the Brazilian coast, forcing the surrender of isolated Portuguese and royalist garrisons. The Pedro I returned to Rio de Janeiro in November 1823, at the head of a triumphant squadron that had facilitated the capture of Maranhão (São Luis), Pará (Belém), and Montevideo while taking another seventy-three prizes.33

For Cochrane, victory once again bore the seeds of discontent. He was, after all, a
mercenary, and as with the Chilean government, his relations with the regime of Dom Pedro I soured over issues of pay and prize money. While haggling with the emperor over such matters, Cochrane continued to serve loyally, cooperating with the Brazilian army to suppress a serious revolt in Pernambuco province. In September 1824 his ships blockaded the rebel capital, Recife, forcing its surrender. Using the frigate *Piranga* as his flagship, he went on to help subdue rebellions in other northern provinces. In mid-1825, as British mediation finally secured Portuguese recognition of Brazilian independence, Cochrane abruptly took the *Piranga* from Maranhão directly to Britain. He justified the cruise on the grounds that his ship needed repairs and the health of his crew required “a more bracing northerly atmosphere” after months of operating along the Equator. Upon his arrival, he negotiated a new post as commanding admiral of the navy of Greece, then embroiled in a war for independence from Turkey. The *Piranga* sailed home without Cochrane later that year. The colorful admiral spent just over two years in the service of Brazil, but without him the country may never have established its independence. Furthermore, in light of the fragmentation of the former Spanish America (ultimately into sixteen independent countries on the mainland alone), it was not a foregone conclusion that the former Portuguese America would remain united as a single state. Without the efforts of the Brazilian navy, and in particular, the leadership of Cochrane, several Portuguese-speaking countries likely would have emerged, reducing Dom Pedro I’s “empire of Brazil” to Rio de Janeiro and the adjacent provinces.

During the struggle for Brazilian independence a royalist rebellion reignited Peru, where Simón Bolívar had taken over as dictator following the departure of San Martín. After the garrison of Callao mutinied in February 1824, raising the Spanish flag, Spain sent troops convoyed by the ship of the line *Asia* and the brig *Aquiles*. The burning of the frigate *Venganza* during the mutiny left the Peruvian navy with just the frigate *Protector* and a few smaller warships, yet Vice Admiral Guise challenged the Spanish warships after they arrived at Callao in September. They came out only once, fighting an inconclusive battle off Callao on 8 October. Chile reinforced the Peruvian effort with the frigate *O’Higgins* and three smaller warships, under the command of Cochrane’s successor, Blanco Encalada. During a brief campaign in November and December, Blanco destroyed royalist installations at Arica before learning that the war had ended in the royalist army’s defeat at the Battle of Ayacucho (9 December 1824). Afterward the two Spanish warships were allowed to leave Callao, but during 1825 the *Asia* mutinied and surrendered to Mexican authorities at Monterey, while the *Aquiles* mutinied and entered the service of Chile. In the summer of 1825–26 Blanco commanded an operation to take the last royalist stronghold in the Latin American republics, the island of Chiloé in the south of Chile, which finally surrendered in January 1826. The victory completed the liberation of mainland Spanish America. Two months before the loss of Chiloé the Spanish had surrendered San Juan de Ulúa, the fortress guarding Veracruz harbor, which they had held since Mexico became independent in
1821. Naval power played a role there, too, as a small Mexican navy consisting mainly of former British ships, commanded mostly by former British officers, in October 1825 drove off a Spanish squadron attempting to resupply the beleaguered garrison. The disappearance of the Spanish threat was no blessing for the navies of the former colonies. Demobilizations depleted the navies of Peru and Mexico, but the most dramatic reductions came in Chile. In April 1826 O’Higgins’ successor, Ramón Freire, sold the three largest remaining ships of the Chilean navy, the *O’Higgins* and two corvettes, to Argentina, and reduced the active force to a single brig.35

Meanwhile, after Cochrane returned to Britain, the Brazilian navy continued to grow. In 1826 two 62-gun sailing frigates arrived from shipyards in the United States, and other new warships were purchased in Britain. From December 1825 to August 1828 the navy played a central role in a war against Argentina, which broke out over Uruguay, a Spanish-speaking province Portugal had annexed to Brazil just before the latter became independent. Dom Pedro I resolved to keep the province, but most Uruguayans favored Argentinian rule or independence. After Argentina attempted to annex Uruguay in 1825, a Brazilian squadron under Admiral Rodrigo Lobo blockaded the mouth of the River Plate, where most of the subsequent fighting occurred. Argentina’s commanding admiral, William Brown, proved to be a resourceful opponent, conducting frequent sorties with his outnumbered force and commissioning privateers to raid Brazilian commerce. Brown’s largest warship, the corvette *25 de Mayo*, finally sank in July 1826 after a duel with the frigate *Niterói* and two smaller Brazilian warships. Thereafter, of the three ships Argentina purchased from Chile, only the corvette *Chacabuco* made it safely around Cape Horn, to be used by Brown as flagship for sorties along the Brazilian coast later in 1826 and during 1827. Neither Brown nor his flagship were present at the decisive Battle of Chico Bank (23 August 1828) off the coast of Rio Grande do Sul, in which a Brazilian corvette and two smaller warships defeated an Argentinian force of the same size. Afterward Brazil and Argentina signed a preliminary peace treaty. With the leading European powers protesting the rigor of the blockade of the River Plate (a French squadron under Rear Admiral A. R. Roussin arrived in 1828, to underscore his country’s displeasure), Brazil chose not to press on for a complete victory. A compromise settlement left Uruguay independent.36

Counting warships still under construction, by 1828 the Brazilian navy had two ships of the line, eleven frigates, and seventy-two smaller vessels. The dismantling of Chile’s navy in 1826 and the destruction of Argentina’s by 1828 left Brazil as the only significant naval power in Latin America. Its fleet had been the decisive factor in the war against Argentina, but the outcome of that conflict underscored the dilemma faced by naval powers of its rank. Brazil had many more warships than it needed to defeat any naval rival on the continent, yet its fleet was far too small to challenge a naval great power, and thus it had prudently made peace when a squadron of one of those powers appeared. After Dom Pedro I abdicated in 1831, to fight for the claim of his daughter Maria to the
Portuguese throne, ministers ruling for his son, child-emperor Dom Pedro II, slashed naval spending. By 1833 most warships were laid up, including both the ships of the line and all but one frigate. As elsewhere in Latin America, the reductions prompted an exodus of foreign personnel, and by 1835 less than two dozen British officers remained. The fate of the Chilean navy in 1826 and the Brazilian navy in the early 1830s set a precedent for the entire region. Throughout the rest of the nineteenth century and into the twentieth, no Latin American country would maintain more of a naval force than it needed to defend its interests within Latin America.

The Greek War for Independence (1821–30)

As early as 1822 Cochrane had declared his sympathy with “the struggle for the liberties of Greece,” which had begun in April 1821 with a revolt in the Morea. Unlike the other European revolutions of 1820–21, the uprising in Greece did not divide Britain from the rest of the Concert of Europe. The philhellenism of the Romantic era made the Greek cause very popular in Britain as well as in France, while Russia supported the movement in its role as traditional patron of Orthodox Christians in the Ottoman empire. In the first years of the war the three powers did not actively help Greece but also did nothing to stop arms, money, and volunteers from flowing there. Among the major European powers only Austria lent active support to the Ottoman empire, in part because the new Greek navy, a force little more disciplined than a pirate fleet, preyed upon the merchantmen of Austria and the Italian states in addition to those of Turkey. Metternich deployed a squadron which skirmished with Greek ships, arranged to have the Venice Arsenal build a frigate for Sultan Mahmut II’s ally Mehemet Ali of Egypt, and also offered to sell the Egyptians some warships of the Austrian navy.

Early in the conflict, neither side used naval power decisively. The Greek fleet, under the nominal command of Admiral Andreas Miaoulis, in fact was a consortium of private shipowners from the various islands and coastal ports, inspired as much by plunder as patriotism. With individual captains free to come and go as they pleased – and often hesitant to participate in operations where the risk was high and the potential for booty low – Miaoulis resorted to hit-and-run tactics which disrupted Turkish trade and naval operations but left the Turks in overall command of the sea. Greek desertions crippled the Ottoman navy at the start of the conflict, hampering the sultan’s efforts to reinforce his garrisons in Greece, which fell one by one to the rebels. As the Turkish fleet began to recover, it failed to bring its superiority to bear, in part because of an exaggerated fear of fireships, which the Greeks used with some success against Ottoman naval formations early in the war. Mahmut II appealed for the assistance of Mehemet Ali out of desperation, for the sultan had no desire to strengthen the already ambitious pasha of Egypt. Over the previous decade, while the other Ottoman North African vassals contented themselves with profiting from piracy and the slave trade,
Mehemet Ali had hired foreign (mostly French) advisors to build and train his own formidable army and navy. Egyptian forces first saw action in the war in 1824, crushing the Greek revolt on the island of Crete. In February 1825 Mehemet Ali’s navy landed troops on the Morea, where they quickly won a series of victories against the undisciplined rebels.40

The success of the Egyptian intervention touched off the crisis which led the Greeks, in August 1825, to hire Cochrane to command their navy. A year earlier Greek agents had gone to western Europe with instructions to purchase eight frigates and hire a foreign admiral. Finding no suitable ships for sale, they ordered the construction of two 64-gun frigates in the United States and six paddle steamers in Britain, Cochrane insisting upon the latter as a condition of his employment. Cochrane’s decision to remain in Britain until the ships were ready kept him out of action for over a year-and-a-half after his first contact with the Greeks. The first of four steamers arrived in Greek waters in September 1826, the frigate *Hellas* that December, but the remaining two steamers were never completed, and the second American frigate had to be sold to the US navy to cover the cost of the first. Cochrane finally took command of the Greek navy in March 1827, with Miaoulis staying on as his second-in-command. Some of his British subordinates from Chile and Brazil followed him to Greece; like their commander, they found it difficult to get along with fiercely independent Greek ships’ captains accustomed to an undisciplined existence. Their outnumbered navy continued to be little more than a nuisance to the overwhelmingly superior Turkish and Egyptian fleets, and Cochrane’s best efforts could not salvage the Greek cause. His boldest stroke, a raid on Alexandria in June 1827, failed when the only available steamer suffered engine trouble, the rest of his force was becalmed by dying winds, and some of his Greek captains refused to obey orders.41

Two weeks before the raid on Alexandria a Turco-Egyptian force took the Acropolis, arousing pro-Greek public and political opinion throughout Europe. The governments of Britain and France felt compelled to intervene in the conflict, to save the Greeks from total defeat and also to forestall a unilateral intervention by Russia, more likely under the new tsar, Nicholas I, who had succeeded Alexander I at the end of 1825. In the Treaty of London (7 July 1827), Britain, France, and Russia agreed to send squadrons to Greek waters to force an end to the conflict. The Russian navy’s first ships to enter the Mediterranean since 1807 had to come from the Baltic, as the Black Sea fleet could not pass through the Turkish straits. Upon arrival the allies blockaded the coast of the Morea and demanded an Egyptian evacuation. When the Egyptian commander, Mehemet Ali’s son Ibrahim, refused to capitulate, Vice Admiral Sir Edward Codrington led an allied force into Navarino Bay, chief anchorage of the Turco-Egyptian fleet, Russia and France each contributed four ships of the line, Britain three, while Russia and Britain each sent four frigates, France one. Six smaller warships rounded out Codrington’s formidable fleet. Accounts of Ibrahim’s order of battle vary dramatically but, counting ships as small as brigs, he had around sixty-five warships,
including seven ships of the line and fifteen frigates. His fleet was anchored along the 
shore in three concentric semicircles, against which Codrington's ships formed a 
semicircle of their own, blocking the entrance to the bay. Codrington had no 
instructions to destroy the Turco-Egyptian fleet, but a battle erupted as the allies 
entered the bay on 20 October 1827, just before the last of the Russian ships had taken 
their positions. Under circumstances that remain unclear, Ibrahim's warships 
apparently opened fire on small boats sent out by the British and French, prompting 
the entire allied fleet to return fire. In two-and-a-half hours of battle the allied 
superiority in ships of the line proved decisive, as their broadsides did most of the work 
in sinking one ship of the line, twelve frigates, twenty-two corvettes, and nineteen brigs, 
in the process killing 7,000 of Ibrahim's sailors. The allies lost no ships but suffered 
casualties of 177 killed and almost 500 wounded.42

As a naval battle, Navarino was notable for two reasons: for the first time since the 
1670s, the British and French navies fought on the same side, and for the last time in 
history, a major engagement included sailing ships alone. The allies also succeeded 
where Miaoulis and Cochrane had failed, crushing the naval power essential to the 
sultan's reconquest of Greece. In January 1828 Count Ioannis Capodistrias, former 
foreign minister of Russia, assumed the presidency of a Greek republic whose 
independence was recognized by international treaty two years later. Cochrane clashed 
almost immediately with Capodistrias and grew disenchanted with the Greek leaders 
in general, characterizing them as “double-dealing knaves.” He resigned in November 
1828 and sailed home to Britain.43 The return to power of the Whigs in 1830 paved the 
way for his political rehabilitation, and two years later the British navy restored his 
commission. Meanwhile, in Greece, Miaoulis resumed the post of commanding 
admiral but also had difficulty getting along with the new president, and unfortunately 
involved the navy in intrigues against him.

While Britain and France repaired their relations with the Ottoman empire in the 
months after Navarino, in April 1828 Russia declared war on Turkey. At the onset of 
hostilities the Russian Black Sea fleet included nine ships of the line and four frigates; 
the Turks, meanwhile, had only the six ships of the line and three frigates that had 
escaped destruction at Navarino.44 For the first time in history Russia enjoyed complete 
command of the Black Sea, something Peter the Great and subsequent tsars had only 
dreamed of in their many wars with Turkey. Aboard the three-decker Parizh, Nicholas 
I personally directed the blockade and siege of Varna, which fell in October 1828. The 
following spring and summer, the navy kept the army supplied from captured coastal 
ports during its march southward to Constantinople. The larger warships of the 
Ottoman fleet remained in the Bosporus except for two sorties, in May and June of 
1829, the first of which succeeded in capturing the Russian frigate Rafail. A wartime 
building program intended to compensate for the losses at Navarino included the 
three-decker Mahmudiye. Upon completion in 1829 it was the world's largest sailing 
warship, a distinction it held through the rest of the age of sail. Meanwhile, in the war
on land, the Russian offensive reached Adrianople before it finally fizzled. In September 1829 a peace treaty extended Russia’s border to the mouth of the Danube.\textsuperscript{45}

The future: paddle steamers and shell guns

During the final months of the War of 1812 against Britain, the United States made the first use of a steamship in a military campaign and also laid down the world’s first steam-powered warship. In January 1815 General Andrew Jackson used the Mississippi river steamer \textit{Enterprise} to transport troops and supplies and to carry dispatches before the Battle of New Orleans. Meanwhile, the American steamship pioneer Robert Fulton, whose earlier river boat \textit{Clermont} (1807) was the first commercially successful merchant steamer, in June 1814 laid down the steam warship \textit{Demologos} at New York. The innovative 1,450-ton vessel was designed to defend New York harbor against British ships of the line and frigates. It had a centerline paddle wheel between twin hulls, engines placed below the waterline capable of 5.5 knots, wooden “armor” five feet thick, and thirteen 32-pounders in each broadside. Fulton died shortly before the \textit{Demologos} made its first sea trial in June 1815; by then the War of 1812 was over, and it was never commissioned. The last of three trials took place that September, after which it was laid up in reserve. The \textit{Demologos} made only one further voyage under its own power, in 1817, when it ferried President James Monroe from New York to Staten Island. Its engines were removed in 1821 and it served as a receiving ship until it blew up in an accident in 1829.\textsuperscript{46}

Secure in its faith in safety in numbers, the British Admiralty remained open to technological change but gladly permitted Britain’s vibrant private sector to make most of the early breakthroughs in steamship design and propulsion. Thus, in an era of great technological change the navy’s share of the annual British budget declined from just over 20 percent in 1815 to less than 10 percent by the 1830s. In contrast, some within the French naval leadership saw in modern industrial technology the key to their future ability to challenge the overwhelming superiority of the British fleet. Thus, when the United States abdicated its initial position of leadership in attempting to apply steam propulsion to warship design, France became the hotbed of innovative naval thinking, with virtually all experimentation coming at public expense.\textsuperscript{47}

The British and French navies first considered steamships for river service in western Africa. In 1816 the British tested a paddle steamer which they hoped to use for an expedition up the Congo River, but the trials were unsuccessful and the ship was rebuilt as a sailing vessel. Two years later the French commissioned two small paddle steamers for use on the Senegal River.\textsuperscript{48} The technology quickly spread to other countries and navies, but most initially retained only one small steamer, more as a novelty pleasure boat for dignitaries than as a practical naval vessel that would have been used in the event of war. Many countries purchased steamers from private British shipyards, then provided the vessels with a nominal armament; those building their own steamships
Plate 1.1 Fulton’s Demologos (1813 preliminary design).
Naval Historical Center, Basic Collection
ordered their engines from British firms. Russia built its first small river steamer in 1815, and the Russian navy commissioned its first steamer two years later. In 1818 Naples launched the Mediterranean’s first steamship, but it remained in service just two years; the Neapolitan navy did not acquire its first genuine steam warship until the 1830s. In 1819 the Danish navy purchased James Watt Jr’s Caledonia for use as a royal steam yacht, but added no more steamers for years thereafter. Meanwhile, the British East India Company acquired its first steamers and used two of them as auxiliaries during the First Burma War (1822–25), which extended British control over Burma. Evidence is sketchy, but some historians consider the company’s armed transport Diana the first steamship to fire shots in battle.49

In the New World, the 100-ton paddle steamer Sea Gull had the distinction of being the first steamship actually commissioned in the US navy. Built in 1818 as a merchant steamer, it was purchased in 1822 and served until 1825 on antipiracy patrols in the Caribbean. As with the Diana, there is some confusion over whether the Sea Gull functioned as a warship in its own right, in addition to serving as a dispatch vessel and a tug for sailing warships.50 Lord Cochrane instigated the acquisition of British paddle steamers by both Chile and Brazil, but in each case they arrived too late to see action in the Wars for Independence. Chile’s Rising Star, a fully rigged corvette-sized steamer, had a centerline paddle wheel like Fulton’s Demologos and carried a conventional battery of 20 guns, ten in each broadside, on its open spar deck. It arrived in Valparaiso in July 1822, one month after Cochrane returned from his last campaign against the Spanish navy, and later served as a British merchantman in South American waters.51 Brazil’s Correio Imperial reached Rio de Janeiro in September 1825, shortly after Cochrane left Brazilian service. Brazil purchased a second British paddle steamer in 1826, but neither ship played an active role in Brazil’s 1825–28 war against Argentina.52

Cochrane then introduced steamships to Greece, where the 400-ton Karteria, the first of the four steamers actually commissioned, is generally accepted to have been the first steam-powered vessel to engage in combat. Starting with its first action in February 1827 its British captain, Frank Abney Hastings, pioneered the use of red-hot shot in skirmishes with Turkish and Egyptian opponents, firing 18,000 rounds of it in 1827 alone. But the Karteria and its sister-ships suffered from chronic engine trouble, and even with an armament of four 68-pounders they were no match for larger sailing warships. Nevertheless, the Greek War of Independence was important to the further development of steam warships, if for no other reason than that a number of British officers serving aboard warships on station in the eastern Mediterranean became steamship proponents after observing the four vessels in action.53 The Ottoman empire received its first paddle steamer too late to use against the Greeks. The 140-ton Sürat (ex-Swift), a gift from Britain during the fencemending that occurred after Navarino, remained unarmed for a quarter-century before receiving two guns at the outbreak of the Crimean War. The first armed steamer in the Ottoman navy was the former British packet Hylton Joliffe, commissioned as Sagir in 1829.54
After conducting trials in which private steamers were used to tow sailing warships, in 1822 the British navy activated the brig-sized tugboat *Comet*. It spent virtually all of its time towing ships into and out of ports in times of calm wind or unfavorable tides. The expense of contracting out such duties to private steamship companies compelled the navy to build several more steam tugs of its own, but none was armed or commanded by a naval officer, and none appeared on the navy list. The navy’s first use of a steamship beyond home waters came in 1824, when the unarmed paddle steamer *Lightning* went to Algiers to serve as towboat for mortar vessels included in a British squadron tasked with reminding the local ruler of his 1816 treaty commitments. King George IV’s brother the Duke of Clarence, the future King William IV, used the *Lightning* as a yacht for dockyard tours after being appointed Lord High Admiral in 1827. Later that year Clarence decided that steamers henceforth would be included in the navy list and commanded by naval officers. In 1828, when Britain intervened in Portugal after the start of the Miguelist War, the navy used the paddle steamer *Echo* as a dispatch boat. The following year the 500-ton *Columbia* was fitted with two light cannon, becoming the first armed steamer in the British navy. In 1830 Britain commissioned its first purpose-built steam warship, the 900-ton *Dee*. By the following year many older steamers, including the *Comet* of 1822, had been armed with at least two guns, and work was underway on four paddle steamers modeled after the *Dee*, all of which were completed by 1833. Though built as naval vessels, the *Dee* and its half-sisters reflected the Admiralty’s deference to the civil sector in steamship development. Their liabilities included side lever engines, which featured a large and heavy power plant unsuitable for warships.55

As early as 1824, steam became a factor in the calculations of naval leaders on both sides of the Channel, as Britain and France each began to fear the new technology would give the other a great advantage. The British navy’s use of the *Lightning* against Algiers in 1824 attracted the attention of the French navy, which later the same year placed the armed steamer *Caroline* on its navy list, three years before the *Lightning* received the same distinction in Britain. During 1824 the First Lord of the Admiralty, Lord Melville, alerted the Duke of Wellington to the danger a French steam-powered navy would pose to the security of Britain.56 But France’s first successful steam warship, the 910-ton paddle steamer *Sphinx*, was not built until 1828–29, and like many early French steamers, it was equipped with imported British engines. The *Sphinx* and another steamer, the *Nageur*, participated in the French invasion of Algiers in June 1830, undertaken by the government of King Charles X, in part to distract public opinion away from pressing domestic issues. Years of disrespect to French merchants and consular personnel served as the pretext for the attack, which the Algerians – and the rest of the world – assumed would have a customary short-term punitive character. Instead France sent Vice Admiral Duperré with a fleet of 103 warships of various sizes to convoy 575 transports with 35,000 troops, enough to seize and occupy Algiers. The *Sphinx* and the *Nageur* participated in the bombardment, then ferried messages to and
from Toulon. Five other new steamers slated to participate in the expedition were not ready in time. The conquest of Algiers, achieved in less than a month, provided the beachhead which France eventually expanded into a vast North African empire. The Algerian adventure failed to serve its domestic political purpose, however, as a revolution three weeks later replaced Charles X with his more liberal cousin Louis Philippe. Initially, Britain and the other naval powers with Mediterranean interests had no complaint with France’s actions, especially as the new king hesitated to make the conquest permanent, waiting four years to establish formal colonial rule. Meanwhile, the occupation of Algiers encouraged better behavior by the neighboring North African regimes.

In the years after 1815, a slow and subtle revolution in naval ordnance coincided with the gradual acceptance of the steamship as a potential warship. Except for Fulton’s Demologos and Cochrane’s Rising Star, the first generation of armed steamers consisted entirely of vessels with side paddles. Because such ships could not accommodate a standard broadside of guns, navies from the start compensated for this deficiency by arming them with a smaller number of heavier guns, as in the case of the 68-pounders aboard Cochrane’s Greek navy steamers. The move toward larger guns also affected the armament of sailing ships, albeit not so dramatically. In the War of 1812 the British had been impressed with the use of 24-pounders by large American frigates such as the Constitution and the United States, which easily defeated British frigates armed primarily with 18-pounders. In 1826 the British navy abandoned the mixed battery of the Napoleonic period in favor of a uniform broadside of 32-pounders for all of its ships of the line. The same year, the news that the American ship of the line Ohio had been equipped with a lower-deck battery of 42-pounders caused alarm in Britain but failed to spark a move to embrace a similar armament. The British navy kept faith with the 32-pounder, installing it in 1830 aboard its first gunnery training ship, the razee frigate Excellent. The 32-pounder soon became standard for British frigates and paddle steamers as well as ships of the line. Eventually Russia joined the United States in introducing some 42-pounders, and the French navy developed a 36-pounder, but as late as 1843 Britain resolved anew to keep the 32-pounder as its standard gun. Experience, rather than blind conservatism, dictated the British decision. At Navarino, Codrington’s flagship Asia opened gaping holes in the hull of its Turkish opponent with close-range broadsides from its 32-pounders. Trials confirmed that a battery of well-handled 32-pounders firing solid shot at close range with the latest improved powder more than sufficed to destroy a wooden warship.

The direct connection between the development of the paddle steam warship and the introduction of heavier naval artillery was clearest to the French, who came to consider steamers the ideal platform for revolutionary shell guns. French artilleryist Henri-Joseph Paixhans had begun experimenting with shell guns as early as 1809, and early on concluded that the new ordnance required a new type of ship to carry it. In 1821 he wrote Idées pour le blindage du batteries flottantes, a visionary work calling for warships to
carry a small number of heavy guns in hulls plated with iron armor. Paixhans soon dropped the idea of armor plating but in *Nouvelle force maritime* (1822) argued that a steam-powered French fleet armed with shell guns would overcome British naval superiority by rendering all sailing battle fleets irrelevant. The French naval leadership did not heed his advice but in 1824 placed at his disposal the old ship of the line *Pacificateur*, for trials which demonstrated the destructive power of his new guns. Afterward the navy agreed to buy its first Paixhans shell guns, for the new paddle steamer *Caroline*. Unfortunately for Paixhans, his early guns were unreliable, as were the first French-built steam engines. In the latter case, the deficiencies of French industry left the navy in the embarrassing position of relying upon machinery imported from Britain to mount its challenge to British naval supremacy. Paixhans marketed the steamer and the shell gun as parts of the same package, but in the 1820s the French navy was in no position to embrace his notion that the two technologies could be combined in a capital ship of the future, making the sailing battleship a thing of the past.

Outside of France, the shell gun found its earliest acceptance in the United States, where George Bomford, chief of army ordnance, during the War of 1812 produced the first Columbiad, a chambered cannon capable of firing either shells or solid shot. For a half-century the Columbiad remained the standard heavy gun for American harbor defenses. Fewer Columbiads were produced for the US navy, and none were mounted aboard ships after the early 1830s. The British navy first introduced shell guns in 1838, fourteen years after the French, but the Admiralty remained as skeptical of Paixhans guns as it was of the American 42-pounder and other heavy solid-shot ordnance. For shell guns, range was the greatest liability, as shells were lighter than solid shot and thus could not be fired as far by the standard smooth-bore guns of the time. For example, a conventional 32-pounder had a range of 1,300 yards, an 8-inch shell gun just 800 yards. After 1838 British ships of the line, frigates, and paddle steamers mounted a few 68-pounder shell guns to supplement their primary armament of 32-pounders.

**Conclusion**

In the 1820s the French navy did not build the steam fleet Paixhans advocated, but many of its officers accepted the notion that France could best challenge Britain’s position as the leading naval power through a decisive move to embrace the latest technology. Paixhans’ greatest legacy was that such thinking became a hallmark of the French navy, later reflected in its pioneering of the screw-propelled battleship in the late 1840s, the ironclad warship in the late 1850s, the torpedo boat in the early 1880s, and the submarine in the late 1890s. But France lacked the industrial base to sustain any of these challenges to the status quo, and in each case Britain’s stronger industry assured that it would emerge from the competition with its superiority intact. Nevertheless, as
the age of sail gave way to a period of intensified technological change, to a significant degree French innovations became the engine which drove the modernization of naval warfare.

Notes


7 Lambert, The Last Sailing Battlefleet, 11–12; Harding, Seapower and Naval Warfare, 277.


11 Harding, Seapower and Naval Warfare, 294.

12 Lawrence Sondhaus, Preparing for Weltpolitik: German Sea Power before the Tirpitz Era (Annapolis, Md, 1997), 4–8.


17 Lambert, The Last Sailing Battlefleet, 8, 99.
18 Hamilton, Anglo-French Naval Rivalry, 3.
19 Randaccio, Le marinnerie militari italiane, 28–32, 90–2; Radogna, Storia della Marina Militare, 93–5.
21 Radogna, Storia della Marina Militare, 97–100.
26 Ibid., 1: 283–7; Rodrigo Fuenzalida Bade, Marines Ilustres y Destacados de Pasado (Concepción, 1985), 21–2, 38; Thomas [Cochrane], Earl of Dundonald, Narrative of Services in the Liberation of Chili, Peru, and Brazil, from Spanish and Portuguese Domination, 2 vols (London, 1859), 1: 3–4.
27 Araya, “Situación estratégica naval,” 1: 288–96; Cochrane quoted in Dundonald, Narrative of Services, 1: 5.
29 Ibid., 1: 296–301; Bade, Marines Ilustres, 39, 265; Dundonald, Narrative of Service, 1: 128–82 passim.
31 Vale, Independence or Death!, 10–21, 32, 40, 43; Cochrane quoted in Dundonald, Narrative of Services, 1: 250.
33 Vale, Independence or Death!, 63–9, 95–6.
34 Ibid., 137–9, 152, 159, 162, 171; Cochrane quoted in Dundonald, Narrative of Services, 2: 247.
36 Carvalho, Nossa Marinha, 22–44, and passim; Vale, Independence or Death!, 168–9, 172; Hamilton, Anglo-French Naval Rivalry, 3.
37 Vale, Independence or Death!, 173–5.
38 Cochrane to Don Antonio Manuel Correa da Camara, Valparaíso, 29 November 1822, in Dundonald, Narrative of Services, 2: 8.
39 Sondhaus, The Habsburg Empire and the Sea, 70–1.
45 Daly, *Russian Seapower and “the Eastern Question”*, 18–34; Clarke, *Russia’s Sea-Power*, 76–7; Langensiepen and Güleryüz, *The Ottoman Steam Navy*, 1–3.
52 Vale, *Independence or Death!*, 168.
54 Langensiepen and Güleryüz, *The Ottoman Steam Navy*, 171.
57 Ibid., 19; Dupont and Taillemite, *Les guerres navales françaises*, 227–33; François Ferdinand d’Orléans, Prince de Joinville, *De l’état des forces navales de la France* (Frankfurt, 1844), 29.
Memoirs, published documents, and contemporary (1815–1914) publications


d’Orléans, François Ferdinand [Prince de Joinville]. De l’état des forces navales de la France. Frankfurt, 1844.


Dundonald, Thomas [Cochrane], Earl of. Narrative of Services in the Liberation of Chili, Peru, and Brazil, from Spanish and Portuguese Domination. 2 vols. London, 1859.


Hall, W. H. Narrative of the Voyages and Services of the Nemesis, from 1840 to 1843. 2nd edn London, 1845.

Harvey, Thomas W., comp. Memoir of Hayward Augustus Harvey. New York, 1900.


Books, articles, and papers


BIBLIOGRAPHY

Internet sources