

THE NAVIES OF THE WORLD 1835—1840

JOHN HOUGHTON



Front Cover: The Egyptian Steam Frigate *Nile* from
Thomas Tredgold's *The Steam Engine: Its Invention
and Progressive Improvement* (Second Edition)



H.M.S. ASIA

THE NAVIES OF THE WORLD

1835–1840

JOHN HOUGHTON

THIRD EDITION

MELBOURNE

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PREFACE

THE steam frigate *Nile*, launched in London for the government of Egypt on 7 June 1834, was the first steam-powered fighting ship to be built for any navy. Measuring 1000 tons burthen, *Nile* was one of the largest steamships in the world when new. Every major fleet possessed steamers in 1834 but they were vessels of limited size not intended for the independent cruising and fighting that was a function of the frigate and, indeed, the ship of the line. In July 1836 the first steam frigate constructed for the British Navy, the 1100-ton *Gorgon*, was laid down.* By early 1840 all of the major naval powers had built or begun to build large steam warships.

This volume records details of the navies of the world just as the steam fighting ship was being introduced. The strength of fleets was then usually measured in ships of the line and frigates. These were the principal instruments of sea power in the sailing era and it is with these ships, therefore, that this work is concerned. In addition, remarks on each navy incorporate an outline of its recent history and development.

The largest ships of the line in this period mounted 120 guns, more in a few cases, and the smallest mounted 60 to 64 guns. A 58-gun ship of the line was still serving in the Danish Navy. The largest frigates of the time also mounted 60 to 64 guns and the smallest 32 guns. A number of 32-gun corvettes

* Although never classified as a frigate, *Gorgon* was often referred to as such and was designed, like a frigate, to carry an armament on two decks. Both *Nile* and *Gorgon* were preceded by the United States steam frigate *Fulton* built in 1814. *Fulton*, however, was a floating battery for harbour defence not a seagoing cruiser.

Nile was also the model for *Bogatyr*, the first Russian steam frigate, laid down in 1835 and launched the following year on 20 August (see Bernhard Gomm, *Die Russischen Kriegsschiffe, 1856–1917*, vol. ii, p. 12). The development of commercial ocean-going steamers was, of course, contemporaneous with that of naval craft.

were constructed in France and the Netherlands that featured a heavy upper-deck armament in addition to a full main-deck battery. They were essentially small frigates and for that reason are included in the fleet lists which follow. Also included are several former British and French frigates that had been cut down to 24, 26 or 28 guns carried on a single deck. I have often continued to use the term 'frigate' for all these vessels. Built in the United States were a series of big, flush-decked corvettes of which Henry Eckford's *Kensington* of 1828 was the most extreme. With a length on deck of 171 feet 9 inches and a moulded breadth of 43 feet 4 inches, *Kensington* was comparable in size to the frigates *Congress* and *Constellation*. It has therefore been included as well. *Kensington* was sold to Mexico and named *Tepeyac* but resold to Russia in 1830 and renamed *Knyaz Varshavskiy* (*Prince of Warsaw*).*

The main reason for producing a third edition of my book, and the most important change from the second, is the inclusion of new material on the Ottoman fleet at the battle of Navarin. The size of the fleet and the extent of its losses have long been a subject of apparent disagreement amongst well placed observers and later historians. Ali Fuat Örenç, in a very carefully researched article for Istanbul University's *Tarih Dergisi* (*History Review*), provides what is probably the definitive list of Turkish and Egyptian losses. He quotes a report by Ibrahim Pasha, supreme Ottoman commander in the Morea, on battle damage that names three Turkish ships of the line, 12 Turkish and three Egyptian frigates, and 18 Turkish corvettes. Three Egyptian corvettes and 13 smaller vessels (four Turkish and nine Egyptian) are identified by the names of their captains. Another report names seven Turkish warships which returned

* *Kensington* is described in Howard I. Chapelle, *The Search for Speed Under Sail*, pp. 258–60. Moulded displacement was 1612.7 tons and moulded depth was 23 feet. *Kensington* had a reputation for fast sailing although it was never copied.

to Alexandria after the battle. Ibrahim Pasha's report, unfortunately, does not include losses amongst the armed merchantmen in the fleet or the small Tunisian component. Nor does it mention the survivors amongst the Egyptian component. But the various contemporary accounts can help in this regard.*

The fullest description of the Ottoman force is that of Jean-Marie Letellier, a French officer serving in the Egyptian Navy, who planned the disposition of the Ottoman vessels before the battle. His account is reproduced in Jane Bouchier's *Memoir* of Admiral Sir Edward Codrington (her father from whom she took dictated notes in the late eighteen-thirties). He lists three Turkish ships of the line, 18 frigates (12 Turkish, four Egyptian and two Tunisian), 30 corvettes (19 Turkish and 11 Egyptian), 28 brigs (six Turkish, 21 Egyptian and one Tunisian), five schooners (all Egyptian) and six fireships (also all Egyptian). Accompanying the fleet were 33 Ottoman and eight Austrian transports. His figures include armed merchantmen but do not distinguish them from naval vessels and he identifies ships by sequential number not by name (except for European approximations in a few cases). He notes that two ships of the line, five frigates (four Turkish and one Egyptian), eight corvettes (three Turkish and five Egyptian) and 14 lesser vessels (all Egyptian) survived the battle or were salvaged. He notes as well that one of the surviving Egyptian brigs was absent on detached service and that three surviving Egyptian corvettes and two further brigs showed no signs of damage so were evidently elsewhere on the coast. The surviving Egyptian frigate he refers to as '*Leone*'. Letellier is a convincing witness.†

* See Ali Fuat Örenç, '1827 Navarin Deniz Savaşı ve Osmanlı Donanması', *Tarih Dergisi*, 2007 (number 46), pp. 60–1 on battle damage to the fleet and p. 71 on Turkish warships which returned to Alexandria.

† For Letellier's account see Lady Bouchier, ed., *Memoir of the Life of Admiral Sir Edward Codrington*, vol. ii, pp. 600–3. For his role before the battle see C. M. Woodhouse, *The Battle of Navarino*, pp. 88 and 98.

A second witness is the secretary to the Kapudan Bey, the Turkish second-in-command, who gave the allies the following description of the fleet (taken from James's *Naval History*):

3 Turkish line-of-battle ships:—1 Turkish admiral—84 guns, 850 men—650 killed—1 ditto, 84 guns, 830 men—1 ditto, 76 guns, 850 men, 400 killed.

4 Egyptian double-banked frigates, 64 guns each, from 450 to 500 men.

15 Turkish frigates, 48 guns, from 450 to 500 men.

18 Turkish corvettes—8 Egyptian ditto—from 18 to 24 guns, 200 men.

4 Turkish brigs—8 Egyptian ditto—19 guns, from 130 to 150 men.

6 Egyptian fire-vessels.

40,000 Egyptian troops in the Morea, 4000 of whom came with the above ships.

The number of smaller vessels, especially brigs, is much reduced here and the number of frigates slightly increased. In my opinion it differs from Letellier because it is, like Ibrahim Pasha's report, a description of warships only (hence the reduced number of smaller vessels) and of warships for the campaign as a whole (hence the increased number of frigates).*

A third witness was Captain Bompar, another French officer serving in the Egyptian Navy like Letellier, whose account is different again. He noted the fleet which left Alexandria for Greece prior to the battle as two ships of the line, 11 frigates (five Turkish, three Egyptian and three Tunisian), 18 corvettes (nine Turkish and nine Egyptian), five brigs (four Egyptian and one Tunisian), six schooners (all Egyptian), six fireships and

* See William James, *Naval History of Great Britain*, vol. vi, p. 490 of the 1837 edition or vol. vi, p. 380 of the more widely available 1886 and later editions.

40 transports. Joining on the way to Greece were an Egyptian frigate and two brigs. At Navarin itself were a ship of the line, eight frigates and 14 corvettes from Constantinople. His total of all vessels sailing from Alexandria is thus 91, far fewer than Letellier's equivalent which is 111, and his Egyptian component (including fireships) is 31 instead of 47. The differences with Letellier, however, relate mainly to numbers of smaller craft and perhaps reflect the addition of ships already in Greek waters to the divisions from Alexandria after their arrival at Navarin. The Egyptian component was one of those divisions. Bompar nevertheless confirms the name of the surviving Egyptian frigate which he calls '*Lion*'. '*Lion*', or '*Leone*' in Italian, was the name Europeans gave the frigate built at Livorno for Egypt in 1826. Its Arabic name was *Zir al-Jihad*.*

Determining the number of smaller Egyptian naval vessels (as distinct from armed merchantmen) that survived from these sources is not possible in every case. Ibrahim Pasha's report, quoted in Ali Fuat Örenç's article, indicates that three Egyptian corvettes were lost and Letellier identifies five as surviving which brings the total to eight had the survivors all been warships. This total matches that in the description of the secretary to the Kapudan Bey and so supports the conclusion that they all were. The number of brigs surviving from the original eight in the secretary's description would be four after the loss of four. Discrepancies between accounts, unfortunately, make

* Bompar's note and an extract from his journal are in Lady Bouchier, op. cit., vol. ii, pp. 543–6. The size of the fleet sailing from Alexandria is confirmed by the French consul there. See Malivoire to the Baron de Damas, 10 August 1827 (enclosure) in Driault, Édouard, ed., *L'expédition de Crète et de Morée (1823–1828): Correspondance des Consuls de France en Égypte et en Crète* (1930), p. 268. A similar account appears in Durand-Viel's *Campagnes Navales de Mohammed Aly et d'Ibrahim* although he classifies 10 of the transports and a *sacoleva* as '*demi-corsaires*'. The Turkish fleet already at Navarin he gives as one ship of the line, nine frigates, 11 corvettes, nine brigs and a corvette and a brig from Tripoli. See vol. i, p. 372. On the name of the surviving Egyptian frigate see *ibid.*, pp. 364 and 441.

similar calculations for other minor combatants impossible.

No review of this issue would be complete without considering the work of two Turkish historians. The near-contemporary court historian Ahmed Lütî Efendi describes the Ottoman fleet at Navarin as follows (the translation from Turkish is mine and the layout is as in the original):

Imperial Navy

Abandoned	Those sunk	Those burnt
Ships	1 frigate Fevz-i Nusret	1 ship Fatih-i Bahrî
1 Kûh-ı Revân	1 corvette Gurre-i Fütûh	
<u>1 Burc-ı Zafer</u>	1 corvette Feyz-bahşâ	8 frigates
2	1 brig Hançer oğlu	15 corvettes
	Osman Kapudan	<u>2 brigs</u>
Frigates	<u>1 brig Tufan Kapudan</u>	26
1 Kaid-i Zafer	5	
1 Keyvân-ı Bahrî		
1 Feyz-i Mi'rac		
<u>1 Mecrâ-yı Zafer</u>		
4		

Total 37

Egyptian Navy

Those sunk	Those burnt	Grand total
1 frigate	2 frigates	10 sunk
2 brigs	3 corvettes	36 burnt
<u>2 schooners</u>	2 brigs	6 wrecked and
5	<u>3 fireships</u>	<u>abandoned</u>
	10	52

Total 15

As a statement of naval losses this description aligns quite well with other sources. In particular, its totals by ship type agree exactly with those in Ali Fuat Örenç's article except that *Mecrâ-yı Zafer* is classified as a frigate instead of a corvette. But 11 Turkish vessels (two frigates, seven corvettes and two brigs) appear as burnt instead of damaged (abandoned) and it omits Egyptian survivors and the Tunisian component. It is, moreover, a description of naval losses and not losses of the fleet in general. It has been relied on by later historians such as Idris Bostan in his *Kürekli ve Yelkenli Osmanlı Gemileri* (see p. 162). They have assumed, however, that it represents the whole Ottoman force which it does not.*

The second historian is Fevzi Kurtoğlu who lists both the fleet before the battle and the damage it sustained in his 1944 study *Yunan İstiklal Harbi ve Navarin Muharebesi* (see vol. ii, pp. 172–3 and 186–7 respectively). While he names most vessels, in both cases he includes only Turkish and Egyptian warships and his data has some shortcomings. His totals by ship type in the first list are generally comparable to those in the description of the secretary to the Kapudan Bey. The major exception is his inclusion of six Egyptian frigates. All other accounts quote either three or four. He names just four of the six: *İhsaniye*, *Mürşidicihat*, *Süreyya* and *Mina*. The last name is not found anywhere else. There would appear, more importantly, to have been no more than four Egyptian frigates available at the time of the battle. Employing Arabic versions of their names they were: *Murshid al-Jihad* (constructed recently at Marseilles), *Zir al-Jihad* (constructed recently at Livorno), *Ihsaniyya* (constructed at Rhodes) and *Surayya* (constructed at

* Lütfi Efendi's description is in *Vak'anüvis Ahmed Lütfi Efendi Tarihi* (8 vols., 1873–1910, as transliterated from Arabic script and reprinted 1999) vol. i, p. 65. Ersan Baş has more recently quoted Bostan, and hence Lütfi Efendi, on the composition of the Ottoman fleet at Navarin in *Çeşme, Navarin, Sinop* (see p. 145).

Alexandria). The older *Africa* (constructed likewise at Alexandria) and *Asia* (purchased in Sweden) had been burnt by the Greeks on 22 September 1824 at Naxos and 12 May 1825 at Modon respectively. A fifth frigate, *Rashid*, was still completing at Venice where it had been launched in May 1827.*

His second list outlining damage sustained by Turkish and Egyptian warships draws, like Ali Fuat Örenç, on a report by Ibrahim Pasha. He reproduces the report in full, transliterated from the original Arabic script, but he seems to have misinterpreted it and therefore to have misrepresented it (see vol ii, pp. 226–7). Names are the same as in Ali Fuat Örenç's article except for a corvette and a fireship which are omitted and one corvette name which differs. But, like Lütfi Efendi, he identifies only six vessels as damaged with five sunk and the rest burnt. Despite such discrepancies, he and Ali Fuat Örenç both give the total Ottoman fleet present as 106 ships including 22 transports. Deducting the transports leaves 84 armed vessels of all types. Letellier lists 90 armed vessels of which three surviving corvettes and two brigs showed no signs of damage so were evidently elsewhere on the coast. Another brig was on detached service. The resulting total of 84 armed vessels is identical to Fevzi Kurtoğlu and Ali Fuat Örenç. Both the latter also state that following the battle there remained one frigate, seven corvettes, eight brigs and the 22 transports. These clearly do not include ships that were later salvaged.

In the previous edition of this book I relied heavily on Letellier for my account of the Ottoman fleet at Navarin in the appendix to the Ottoman Navies. I have used him in this edition again, although with some slight modifications, but I have added lists of mostly named warships, the damage they sustained and other details from Ali Fuat Örenç. The result is a

* On this topic see Durand-Viel, *op. cit.*, vol. i, pp. 249, 267, 299, 363–5 and 439–40, and Georges Douin, *Les Premières Frégates de Mohammed Aly*, *passim*.

description in two parts, an initial one of the full fleet including armed merchant vessels and a second one of mostly named warships and their fates.

A great deal of superb research on maritime history is now being undertaken in Turkey and four important doctoral theses relevant to the eighteenth and nineteenth centuries have been completed in recent years. They are Yusuf Alperen's *Osmanlı Denizciliği (1700–1770)* presented at Istanbul University in 2007, Kahraman Şakul's *An Ottoman Global Moment: War of the Second Coalition in the Levant* presented at Georgetown University (Washington, D.C.) in 2009, Sinan Dereli's *XVIII. Yüzyılda Kalyon Teknolojisi ve Osmanlı Kalyonarı* presented at Istanbul University in 2010 and Levent Düzcü's *Yelkenliden Buharlıya Geçişte Osmanlı Denizciliği (1825–1855)* presented at Gazi University (Ankara) in 2012. All are major contributions to the literature. Yusuf Alperen examines the introduction of ships of the line into the Turkish fleet and their construction to 1770. His study was published in 2011 as *Sultanı Kalyonarı (The Sultan's Ships of the Line)*. Kahraman Şakul analyses Ottoman participation in the War of the Second Coalition between 1798 and 1801. Sinan Dereli compares Ottoman naval technology with that of Western Europe using the early eighteenth century line-of-battle ship *Şehbâz-ı Bahrî* as an example. Levent Düzcü surveys the transition of the Turkish fleet from sail to steam. I have, naturally, used his thesis as a major point of reference in reviewing my own material and I have drawn on it to make several revisions. These revisions relate to my description of the Turkish fleet and Turkish new construction in Appendix III.

Two further works on nineteenth-century Ottoman history that I have found helpful since completing the previous edition are Khaled Fahmy's *All the Pasha's Men* first published in 1997 (reprinted in 2003), which investigates Mehmed Ali's

creation of a Western-style army, and the Pera Museum's exhibition guidebook and essay collection *Osmanlı Donanmasının Seyir Defteri: The Logbook of the Ottoman Navy* published in 2009. Currently in preparation by a team of authors and edited by Emir Yener is *Ottoman Warships in the Age of Sail, 1682–1864*. This fascinating project will draw on British, French, Russian and Venetian archives, wherever possible, as well as Ottoman ones.

A last remark on my Turkish data concerns the dimensions I quote for the ship of the line *Mahmudiye* which come from James de Kay's *Sketches of Turkey*. I have discovered that de Kay was a son-in-law of the American shipbuilder Henry Eckford. In 1831 de Kay and Eckford travelled together to Turkey where Eckford sold his new corvette *United States* to the Sultan and soon entered the Sultan's employment. De Kay writes of *Mahmudiye* 'Through the politeness of the chief constructor we were furnished with the following statement of her dimensions, which was afterward verified by one of our friends in English feet and inches' (*Sketches* p. 312). The friend he refers to may well have been Eckford.

Changes elsewhere in this edition are fairly minor. A major source on the Italian sail-and-steam navy of which I had not been aware is Franco Bargoni, Franco Gay and Valerio Manlio Gay's *Navi a Vela e Navi Miste Italiane* published in 2001. It is clear from this source that the Neopolitan corvette *Cristina* was originally a royal yacht and not a frigate built in 1812. In all other literature it appears as a rebuild of the earlier frigate or, in Alain Demerliac's *Nomenclature* for the years 1800 to 1815, as a 32-gun corvette from inception. Launch years have been added for two former Indiamen, the Portuguese frigate *Dom Pedro* and Mexican frigate *Libertad*, and the previous name of the latter amended from *Arveprinds* to *Arveprindsen*. In the Appendix to the British Navy the 12-pounder battery of

the 74-gun ship has been altered from four to six guns. I have used an excellent work on the Venetian fleet, Guido Ercole's *Vascelli e Fregate della Serenissima* newly published in 2011, to revise details of that fleet in the Austrian section. A number of typographical errors have also been corrected and the Portuguese and Sardinian sections partially rearranged. I have, of course, brought both the bibliography and my notes on the data at the end of the book up to date.

The most obvious difference that readers will notice in this edition, however, is the italicizing of ship names. The practice is now usual and helps readers recognize ship names as such, so I have adopted it here. Because letter spacing was modified as a result, some rewording has occasionally been necessary. Readers will notice as well that table borders have been simplified to improve their appearance.

The late eighteen-thirties, as already noted, saw the introduction of the first ocean-going steamers. Although they held great attraction in both the naval and commercial spheres, an analysis of weights for the steamer *Nile* in my final appendix reveals how marginal they were in effective carrying capacity. Machinery, coal and boiler water make up 38.9% of load displacement, the hull 37.2% and all other weights (armament, equipment and stores, including masts and rig) 23.9%. The relative hull weight is much less than in contemporary British sailing warships which ranged from 49.4% for a 52-gun frigate to 58.1% for a 50-gun razee (see p. 24 below). Despite this difference, a contemporary 46-gun frigate of almost identical load displacement to *Nile* carried 670 tons of armament, equipment and stores compared to the latter's 347 tons.

Perhaps the most remarkable feature of this period was the growth of the Egyptian Navy between 1828 and 1838. During the course of that decade, 12 ships of the line and four frigates were built at Alexandria or purchased abroad, all powerful

vessels of their class. The ships of the line were to mount 136 to 88 guns each and the frigates 60 to 56 guns. By the end of 1838 the Egyptian fleet was comparable in ships afloat to that of the United States. The driving force behind this immense building programme was Mehmed Ali, Ottoman Governor of Egypt. His reasons for expanding the navy related to his political objectives within the Ottoman Empire. He planned to conquer Syria and without a strong fleet his army would be exposed to attack from the sea by the Sultan. The fact that the fleet was never used in battle, other than to assist the army against coastal defences, does not detract from the technical achievement of its design and construction.

The prestige of the British Navy was unparalleled at this time, the result of its long succession of victories in the Revolutionary and Napoleonic Wars. Its reputation was confirmed at Navarin in 1827 and enhanced still further by the excellence of its gunnery at St Jean d'Acre in 1840. The sailing navy, however, had by then reached the final stage of its development. Steam would alter the nature of naval warfare and, or so it seemed, upset the balance of naval power.

JOHN HOUGHTON

Melbourne, 30 November 2012.

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GLOSSARY

Brig: A square-rigged, two-masted ship. As warships in the early nineteenth century, brigs were small escort vessels armed on the upper deck only.

Burthen: The carrying capacity of a ship normally expressed in tons. A great variety of formulae based on ships' dimensions have been used at different times and in different places to calculate the carrying capacity of ships. Builder's measurement tonnage was used by the British Navy as the standard indicator of ship size until replaced by displacement in 1872.

Carronade: In 1778 the Carron Company of Scotland began producing a type of short gun firing standard projectiles with reduced charges that quickly became known as the 'carronade'. Being light, carronades could be mounted in the upper works of a ship without affecting stability. They were introduced into the British Navy from 1779 to provide smaller warships in particular with greater fire-power, albeit at short range only.

Corvette: Originally the French equivalent of the English term 'sloop'. In the early nineteenth century this term was increasingly used in English to describe an intermediate type between frigates and sloops. Corvettes were square-rigged on three masts.

Deck: I have adopted the convention, increasingly common in the early nineteenth century, of calling the highest, continuous deck of a ship the upper deck and the one immediately below the main deck. On the largest ships of the line, with three gun-decks, the deck below the main deck was the middle deck and the deck below that was the lower deck.

Lower still and below the waterline was the orlop deck, the lowest continuous deck in the ship. Smaller ships of the line, with two gun-decks, and frigates had no middle deck but did have lower and orlop decks. The poop deck was a short platform at the stern above the upper deck. In the eighteenth century the main deck, as I have used that term, was universally referred to as the upper deck. There was then no higher, continuous deck but only a partial one forward, the forecastle, and one aft, the quarter deck. These partial decks were gradually connected in new construction to increase structural strength and to improve cover for the gun crews below during action.

Displacement: The amount of water displaced by a ship, indicating its weight. Load displacement refers to the weight of a ship as normally equipped and stored for sea.

East Indiaman: A merchant ship of the seventeenth to nineteenth centuries designed for trade between Europe and the East Indies—at that time meaning India, South-East Asia and China. Being intended for such long voyages, East Indiamen were the largest merchant ships of their day and sometimes favoured for conversion into warships because of their strong construction.

Frigate: A cruising and scouting vessel. In the early nineteenth century frigates had one complete, covered gun-deck with additional guns on the upper deck. Sometimes this deck was fully armed as well. Frigates were square-rigged on three masts.

Hulk: A ship stripped of its masts, rigging and other equipment, usually for use in a subsidiary, non-seagoing capacity. A sheer hulk had sheer legs and tackle for lifting the lower masts in and out of seagoing vessels.

Horse-power: The power output of an engine. Measuring the actual power of a working piston was initially very difficult

and an approximation based on the geometry of an engine known as 'nominal horse-power' was widely used instead. An instrument called an 'indicator' was developed in the early nineteenth century that could draw a graph of pressure against piston speed from which the power available in the steam could be calculated. Known as 'indicated horse-power' this took no account of losses due to friction or any other cause and is thus still a theoretical figure.

Lazaretto: A hulk fitted as a floating hospital or quarantine vessel.

Rate: A grouping of ships according to fire-power. The most powerful ships of the line were classified as first-rates, less powerful ships as second-rates and so on. The French equivalent was 'rang'.

Receiving ship: A ship equipped to receive new recruits into the navy before their allocation to seagoing vessels. Receiving ships were sometimes, but not necessarily, vessels at the end of their active lives.

Rig: The masts, sails and ropes equipping a sailing ship. The related term 'rigging' describes specifically the ropes and blocks supporting the masts and working the sails. Many terms have been used to describe sometimes major and sometimes subtle differences in rig. The broadest distinction is between square and fore-and-aft rigs. The former denotes a rig made up primarily of rectangular, athwartships sails. The latter denotes, in contrast, a rig made up primarily of sails slung in a fore-and-aft direction close to the centre-line of the ship. Both types of rig often employed sails from the other type. That is, square rigs usually included fore-and-aft sails while fore-and-aft rigs sometimes included athwartships sails.

Schooner: A small vessel, fore-and-aft rigged on two or three masts, designed for fast sailing. As warships in the early

nineteenth century, schooners were lightly armed on the upper deck.

Shell gun: A gun designed to fire exploding shells or hollow, battering shot. Strongly advocated in France from 1822 by the artillerist General Henri Paixhans, they were sometimes known as Paixhans guns.

Ship of the line: The heaviest fighting ship of the sailing era intended to lie in the line of battle. In the early nineteenth century ships of the line had two or three complete, covered gun-decks with additional guns on the upper deck. Sometimes this deck was fully armed as well. Ships of the line were square-rigged on three masts.

Sloop: An escort vessel normally, but not always, armed on the upper deck only. From the late eighteenth century numbers of sloops were 'frigate built' with quarter decks and fore-castles which ultimately became a new, continuous upper deck, as I have used that term. Originally sloops could be square-rigged on two or three masts but in the early nineteenth century the former were referred to as 'brigs'. The French term 'corvette' was then being used increasingly in English to describe large sloops.

Steamship: The first fully effective examples were built in Scotland and the United States at the beginning of the nineteenth century. Steadily increasing in size and seaworthiness, ships capable of crossing the Atlantic under steam power alone were constructed in the late 1830s. Amongst warships, I have used a load displacement of about 1200 to 1250 tons to distinguish 'ocean-going' from lesser steamships.

Xebec: A Mediterranean type, fore-and-aft rigged on two or three masts, designed for fast sailing. Xebecs sometimes mounted a numerous battery on the upper deck but of light guns only.

A NOTE ON DEFINITIONS

Unless otherwise specified, the length of ships appearing here is length on the lower deck, breadth is extreme breadth and draught is mean draught. Tonnage for British ships is builder's measurement tonnage. For other ships it is also tonnage calculated by formula but the method of calculation varied from country to country. Displacement is in long tons except for French vessels where it is in metric tons. The horse-power of steamers, sometimes abbreviated to H.P., is nominal horse-power.

THE BRITISH NAVY

IN December 1835 the British Navy included 133 ships of the line and 145 frigates. Of these 278 vessels, 14 ships of the line and 11 frigates were on the stocks. The navy still contained a substantial number of ships captured during the Revolutionary and Napoleonic Wars—the oldest launched in 1749—several of which continued to be effective as cruisers.

In January 1793, immediately before the Revolutionary War with France began, the British Navy included 153 ships of 110 to 60 guns and 146 frigates of 50 to 28 guns. It expanded dramatically in the war years, reaching its zenith in 1810, but decreased quickly to pre-war levels after the coming of peace in 1815. Its strength in January of each of the years below was:

Class	1801		1810		1820	
	No.	Guns	No.	Guns	No.	Guns
Ships of the line	190	120–60	243	120–60	149	120–74
Frigates	186	56–28	233	56–28	144	60–32

Throughout two decades of warfare at sea between 1793 and 1815, Great Britain maintained an unassailable maritime supremacy. Other powers lost 154 ships of the line and 245 frigates captured or destroyed by the British, excluding unseviceable vessels and those building. France lost 74 ships of the line and 161 frigates, the Dutch Navy 28 ships of the line and 35 frigates, Spain 20 ships of the line and 23 frigates, Denmark 21 ships of the line and 15 frigates, Russia 10 ships of the line and three frigates, Turkey one ship of the line and five frigates, and the United States three frigates. The British Navy lost to enemy action only five ships of the line and 20 frigates.

THE BRITISH NAVY

December 1835

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Britannia</i>	120	12.13	20.10.20	2616	
<i>Caledonia</i>	120	1.1.05	25.6.08	2616	
<i>Hibernia</i> ⁽¹⁾	120	11.92	17.11.04	2530	
<i>Howe</i>	120	6.08	28.3.15	2619	
<i>Nelson</i>	120	12.09	4.7.14	2617	
<i>Neptune</i>	120	1.27	27.9.32	2694	
<i>Prince Regent</i> ⁽²⁾	120	17.7.15	12.4.23	2613	
<i>Royal George</i> ⁽³⁾	120	6.23	22.9.27	2616	
<i>Royal William</i>	120	10.25	2.4.33	2694	
<i>St George</i>	120	5.27	-	2694	On the stocks.
<i>St Vincent</i>	120	5.10	11.3.15	2612	
<i>Trafalgar</i>	120	12.29	-	2694	On the stocks.
<i>Waterloo</i>	120	3.27	18.6.33	2694	

Notes: (1) Laid down as a 112-gun ship of 2332 tons and lengthened in 1795. (2) Ordered 6.1.12 on the same day as *Britannia*, *Princess Charlotte* and *Royal Adelaide* as a 108-gun ship of 2279 tons and reordered 1.9.14. (3) Ex *Neptune* renamed 12.2.22.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Ville de Paris</i>	112	1.7.89	17.7.95	2351	Lazaretto.
<i>Algiers</i>	110	-	-	3099	To begin building.
<i>Royal Frederick</i> ⁽¹⁾	110	11.33	-	3099	On the stocks.
<i>Royal Sovereign</i>	110	-	-	3099	To begin building.
<i>San Josef</i> ⁽²⁾	110	Captured	14.2.97	2457	
<i>Victoria</i>	110	-	-	3099	To begin building.
<i>Captain</i> ⁽³⁾	106	7.1.74	11.9.86	2175	Receiving ship.
<i>Impregnable</i> ⁽⁴⁾	106	23.2.02	1.8.10	2406	
<i>Camperdown</i> ⁽⁴⁾	104	5.13	26.7.20	2404	
<i>Dreadnought</i>	104	7.88	13.6.01	2111	Hospital ship.
<i>Princess Charlotte</i>	104	11.18	11.11.25	2443	
<i>Queen Charlotte</i>	104	10.05	17.5.10	2311	
<i>Royal Adelaide</i> ⁽⁵⁾	104	5.19	28.7.28	2446	
<i>Temeraire</i>	104	7.93	11.9.98	2121	Victualling depot.
<i>Victory</i>	104	23.7.59	7.5.65	2164	
<i>Duke</i>	98	10.72	18.10.77	1943	Lazaretto.
<i>Prince</i>	98	1.1.82	4.7.88	2088	Receiving ship.

Notes: (1) Ordered 29.10.27 as a 120-gun ship of 2694 tons and reordered 3.9.33. (2) Ex Spanish *San Josef* launched 30.6.83.
(3) Ex *Royal Sovereign* renamed 17.5.25. (4) Ex *Trafalgar* renamed 22.2.25. (5) Ex *London* renamed 10.5.27.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>London</i>	92	10.27	-	2598	On the stocks.
<i>Nile</i>	92	10.27	-	2598	" " "
<i>Rodney</i>	92	7.27	18.6.33	2598	
<i>Asia</i>	84	1.22	19.1.24	2289	
<i>Bombay</i>	84	5.26	17.3.28	2279	
<i>Calcutta</i>	84	3.28	14.3.31	2299	
<i>Canopus</i> ⁽¹⁾	84	Captured	1.8.98	2257	
<i>Clarence</i> ⁽²⁾	84	8.24	25.7.27	2288	
<i>Formidable</i>	84	10.19	19.5.25	2289	
<i>Ganges</i>	84	5.19	10.11.21	2284	
<i>Malta</i> ⁽³⁾	84	Captured	30.3.00	2265	Depot.
<i>Monarch</i>	84	8.25	8.10.32	2255	
<i>Powerful</i>	84	8.20	21.6.26	2296	
<i>Thunderer</i>	84	4.23	22.9.31	2279	
<i>Vengeance</i>	84	7.19	27.7.24	2284	
<i>Bellerophon</i> ⁽⁴⁾	80	11.13	16.10.18	2056	
<i>Cambridge</i>	80	12.11	23.6.15	2139	

Notes: (1) Ex French *Franklin* launched 25.6.97. (2) Ex *Goliath* renamed 26.5.27. (3) Ex French *Guillaume Tell* launched 21.10.95. (4) Ex *Waterloo* renamed 5.10.24, ex *Talavera* renamed 23.7.17.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Christian VII</i> ⁽¹⁾	80	Captured	7.9.07	2131	Lazaretto.
<i>Collingwood</i>	80	9.35	-	2590	On the stocks.
<i>Foudroyant</i>	80	5.89	31.3.98	2062	
<i>Gibraltar</i> ⁽²⁾	80	Captured	16.1.80	2185	Lazaretto.
<i>Goliath</i>	80	2.34	-	2590	On the stocks.
<i>Hindostan</i>	80	9.28	-	2028	" "
<i>Indus</i>	80	7.24	-	2096	" "
<i>Ocean</i>	80	1.10.92	24.10.05	2291	110-gun ship cut down 7.21.
<i>Sans Pareil</i> ⁽³⁾	80	Captured	1.6.94	2242	Sheer hulk.
<i>Vanguard</i>	80	5.33	25.8.35	2590	
<i>Achille</i>	78	10.95	16.4.98	1981	
<i>Donegal</i> ⁽⁴⁾	78	Captured	12.10.98	1901	
<i>Kent</i>	78	10.95	17.1.98	2009	
<i>Milford</i>	78	6.98	1.4.09	1919	Lazaretto.
<i>Northumberland</i>	78	10.95	2.2.98	1907	"
<i>Prince George</i>	78	18.5.67	31.8.72	1955	Sheer hulk.
<i>Revenge</i>	78	8.00	13.4.05	1954	

Notes: (1) Ex Danish *Christian VII* launched 29.7.03. (2) Ex Spanish *Real Fenix* launched 26.2.49. (3) Ex French *Sans Pareil* launched 8.6.93. (4) Ex French *Hoche*, ex *Pegase* renamed 17.12.97, ex *Barra* renamed 9.10.95, launched 23.3.94.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Excellent</i> ⁽¹⁾	76	4.06	3.7.10	2155	Gunnery ship.
<i>Spartiate</i> ⁽²⁾	76	Captured	1.8.98	1949	
<i>Warrior</i>	76	11.73	18.10.81	1642	Receiving ship.
<i>Warspite</i>	76	3.12.05	16.11.07	1890	
<i>Windsor Castle</i>	76	19.8.84	31.5.90	1874	98-gun ship cut down 6.14, depot.
<i>Aboukir</i>	74	6.04	18.11.07	1703	Receiving ship.
<i>Agincourt</i>	74	5.13	19.3.17	1747	
<i>Ajax</i>	74	8.07	2.5.09	1761	
<i>Albion</i>	74	6.00	17.6.02	1743	
<i>Anson</i>	74	3.08	11.5.12	1742	
<i>Armada</i>	74	2.07	22.3.10	1749	
<i>Belliesle</i>	74	2.16	26.4.19	1709	
<i>Bellona</i> ⁽³⁾	74	4.09	19.12.12	1756	
<i>Benbow</i>	74	7.08	3.2.13	1773	
<i>Black Prince</i>	74	7.14	30.3.16	1751	
<i>Blake</i> ⁽⁴⁾	74	10.05	28.3.08	1701	Receiving ship.

Notes: (1) Ex *Boyne* renamed 1.12.34, ordered to be cut down from a 104-gun ship 10.7.26. (2) Ex French *Spartiate* launched 24.11.97. (3) Ex *Indus* renamed 3.11.18. (4) Ex *Bombay* renamed 28.4.19.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Blenheim</i>	74	8.08	31.5.13	1747	Marine barracks.
<i>Carnatic</i>	74	1.18	21.10.23	1790	
<i>Cornwallis</i>	74	11	12.5.13	1809	
<i>Defence</i> ⁽¹⁾	74	5.12	25.4.15	1754	
<i>Devonshire</i>	74	2.10	23.9.12	1742	
<i>Dragon</i>	74	8.95	2.4.98	1815	Convict ship. Receiving ship.
<i>Duncan</i>	74	8.08	2.12.11	1761	
<i>Edinburgh</i>	74	11.07	26.1.11	1772	
<i>Egmont</i>	74	10.07	7.3.10	1760	
<i>Fortitude</i> ⁽²⁾	74	8.05	19.8.07	1718	
<i>Genoa</i> ⁽³⁾	74	Captured	18.4.14	1883	Convict ship. Receiving ship.
<i>Greenwich</i> ⁽⁴⁾	74	3.08	8.12.09	1754	
<i>Hastings</i> ⁽⁵⁾	74	Purchased	22.6.19	1763	
<i>Hawke</i>	74	4.15	16.3.20	1754	
<i>Hercules</i>	74	8.12	5.9.15	1750	
<i>Hogue</i>	74	4.08	3.10.11	1750	Convict ship. Receiving ship.
<i>Illustrious</i>	74	2.01	3.9.03	1746	

Notes: (1) Ex *Marathon* renamed 3.1.15. (2) Ex *Cumberland* renamed 15.11.33. (3) Ex French *Brilliant* captured on the stocks at Genoa. (4) Ex *Rodney* renamed 17.3.27. (5) Built by the East India Co. at Calcutta and launched 8.1.18.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Implacable</i> ⁽¹⁾	74	Captured	4.11.05	1882	
<i>Invincible</i>	74	1.1.06	15.3.08	1674	
<i>Leviathan</i>	74	5.82	9.10.90	1707	Convict ship.
<i>Magnificent</i>	74	4.05	30.8.06	1732	Receiving ship.
<i>Malabar</i>	74	4.17	28.12.18	1715	
<i>Medway</i>	74	12.08	19.11.12	1768	
<i>Melville</i>	74	7.15	17.2.17	1768	
<i>Minden</i>	74	07	19.6.10	1721	
<i>Minotaur</i>	74	12.12	15.4.16	1726	
<i>Mulgrave</i>	74	2.08	1.1.12	1762	
<i>Pembroke</i>	74	3.09	27.6.12	1758	
<i>Pitt</i>	74	5.13	13.4.16	1751	
<i>Poitiers</i>	74	8.07	9.12.09	1765	
<i>Ramillies</i>	74	12.82	12.7.85	1677	Lazaretto.
<i>Redoubtable</i>	74	4.09	26.1.15	1759	
<i>Royal Oak</i>	74	6.06	4.3.09	1759	Receiving ship.
<i>Russell</i>	74	8.14	22.5.22	1751	

Note: (1) Ex French *Duguay Trouin* launched 25.3.00.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Scarborough</i>	74	1.08	29.3.12	1745	Lazaretto.
<i>Stirling Castle</i>	74	7.08	31.12.11	1774	
<i>Sultan</i>	74	12.05	19.9.07	1751	
<i>Swiftsure</i>	74	8.02	23.7.04	1724	Receiving ship.
<i>Talavera</i> ⁽¹⁾	74	7.14	15.10.18	1718	
<i>Terrible</i>	74	1.83	28.3.85	1679	Victualling depot.
<i>Tremendous</i>	74	13.8.82	30.10.84	1706	
<i>Triumph</i>	74	2.1.58	3.3.64	1825	Lazaretto.
<i>Venerable</i>	74	12.05	12.4.08	1716	
<i>Vengeur</i>	74	7.07	19.6.10	1765	Receiving ship.
<i>Victorious</i>	74	2.05	20.10.08	1724	” ”
<i>Vigo</i>	74	4.07	21.2.10	1787	” ”
<i>Wellesly</i>	74	5.13	24.2.15	1746	
<i>Wellington</i> ⁽²⁾	74	7.13	21.9.16	1757	
<i>York</i>	74	8.05	7.7.07	1743	Convict ship.
<i>Boscawen</i> ⁽³⁾	70	1.26	-	2212	On the stocks.
<i>Cumberland</i>	70	-	-	2212	To begin building.

Notes: (1) Ex *Thunderer* renamed 23.7.17. (2) Ex *Hero* renamed 4.12.16. (3) Laid down as an 80-gun ship of 2043 tons, re-ordered 29.11.32 as a 50-gun frigate of 2082 tons to be named *Indefatigable* and reordered again as a 70-gun ship 3.3.34.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Lion</i>	64	5.69	3.9.77	1378	Sheer hulk.
<i>Monmouth</i> ⁽¹⁾	64		23.4.96	1439	
<i>Saturn</i>	58	8.82	22.11.86	1616	74-gun ship cut down 12.13, lazaretto.
<i>Alfred</i> ⁽²⁾	50	2.08	2.12.11	1763	74-gun ship cut down 8.28.
<i>America</i>	50	1.08	21.4.10	1758	" " " " 2.35.
<i>Barham</i>	50	6.08	8.7.11	1761	" " " " 12.26.
<i>Conquestador</i>	50	8.07	1.8.10	1773	" " " " 4.31.
<i>Cornwall</i>	50	3.09	16.1.12	1751	" " " " 5.30.
<i>Dublin</i>	50	5.09	13.2.12	1772	" " " " 12.26.
<i>Eagle</i>	50	8.00	27.2.04	1723	" " " " 3.31.
<i>Gloucester</i>	50	3.08	27.2.12	1770	" " " " 12.32.
<i>Vernon</i>	50	10.31	1.5.32	2082	
<i>Vindictive</i>	50	7.08	23.11.13	1758	74-gun ship cut down 10.32.
<i>Newcastle</i>	60	6.13	10.11.13	1556	Lazaretto.
<i>Jupiter</i>	58	7.10	22.11.13	1173	
<i>Romney</i>	58	8.11	24.2.15	1227	Troop ship.

Notes: (1) Ex East Indianman *Belmont* purchased on the stocks in 1796. (2) Ex *Asia* renamed in 1819.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Salisbury</i>	58	10.11	21.6.14	1199	On the stocks.
<i>Chichester</i>	52	7.27	-	1468	
<i>Java</i>	52	3.14	16.11.15	1458	
<i>Lancaster</i>	52	18.7.18	23.8.23	1478	
<i>Portland</i> ⁽¹⁾	52	8.17	8.5.22	1476	
<i>President</i>	52	6.24	20.4.29	1537	
<i>Southampton</i>	52	3.17	7.11.20	1476	
<i>Winchester</i>	52	11.18	21.6.22	1487	
<i>Worcester</i>	52	12.20	-	1468	
<i>Akbar</i> ⁽²⁾	50	Purchased	3.05	1388	On the stocks. Lazaretto.
<i>Antelope</i>	50	6.90	10.11.02	1107	Lent to the East India Company. Convict ship.
<i>Beschermer</i> ⁽³⁾	50	Captured	30.8.99	1052	
<i>Coromandel</i> ⁽⁴⁾	50	Purchased	5.04	936	
<i>Endymion</i>	50	11.95	29.3.97	1277	Convict ship.
<i>Isis</i>	50	2.16	5.10.19	1321	
<i>Justitia</i> ⁽⁵⁾	50	Purchased	5.04	887	

Notes: (1) Ex *Kingston* renamed in 1817. (2) Ex *Cornwallis* renamed in 2.11, ex East India Co. cruiser *Cornwallis* launched in 1.01. (3) Ex Dutch *Beschermer* launched in 1784. (4) Ex *Malabar* renamed 7.3.15, ex East Indian *Cuvera* launched in 1798. (5) Ex *Dolphin* renamed in 1830, ex *Hindustan* renamed 22.9.19, ex East Indian *Admiral Rainier* launched in 1799.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Lavinia</i>	48	5.98	6.3.06	1172	
<i>Æolus</i>	46	10.18	17.6.25	1077	
<i>Africaine</i>	46	9.25	20.12.27	1173	
<i>Amazon</i>	46	10.17	15.8.21	1078	
<i>Amphitrite</i>	46	8.14	14.4.16	1064	
<i>Andromeda</i>	46	8.27	3.29	1215	
<i>Apollo</i>	46	4.04	27.6.05	1086	
<i>Arethusa</i>	46	2.15	29.7.17	1085	
<i>Argo</i> ⁽¹⁾	46	7.98	14.12.99	1058	Receiving ship.
<i>Aurora</i> ⁽²⁾	46	Captured	26.2.14	1083	Coal depot.
<i>Bacchante</i>	46	7.10	16.3.11	1077	
<i>Blanche</i>	46	2.16	26.5.19	1074	
<i>Blonde</i>	46	3.16	12.1.19	1103	
<i>Boadicea</i>	46	9.95	12.4.97	1052	
<i>Briton</i>	46	2.10	11.4.12	1080	
<i>Cerberus</i>	46	11.20	30.3.27	1079	
<i>Circe</i>	46	11.20	22.9.27	1079	

Notes: (1) Ex *Active* renamed 15.11.33. (2) Ex French *Clorinde* launched 8.8.08.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Clyde</i>	46	1.21	9.10.28	1081	Depot.
<i>Crescent</i>	46	9.09	11.12.10	1084	
<i>Dedalus</i>	46	10.22	2.5.26	1082	
<i>Diana</i>	46	2.19	8.1.22	1083	
<i>Druid</i>	46	8.21	1.7.25	1169	
<i>Eurotas</i>	46	2.27	19.2.29	1168	Receiving ship. " "
<i>Fisgard</i>	46	2.17	8.7.19	1069	
<i>Forth</i>	46	11.28	1.8.33	1215	
<i>Fox</i>	46	6.21	17.8.29	1080	
<i>Hamadryad</i>	46	9.19	25.7.23	1082	
<i>Hebe</i>	46	5.20	14.12.26	1078	Receiving ship. " "
<i>Horatio</i>	46	7.05	23.4.07	1090	
<i>Hotspur</i>	46	7.25	9.10.28	1171	
<i>Hussar</i>	46	3.06	23.4.07	1077	
<i>Immortalite</i> ⁽¹⁾	46	Captured	16.1.14	1080	
<i>Latona</i>	46	10.18	16.6.21	1071	Receiving ship. " "
<i>Laural</i>	46	6.12	31.5.13	1088	

Note: (1) Ex *Dunira* renamed 8.11.14, ex French *Alcmène* launched 3.10.11.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Leda</i>	46	10.24	15.4.28	1171	
<i>Leonidas</i>	46	11.05	4.9.07	1067	
<i>Lively</i> ⁽¹⁾	46	7.10	14.7.13	1080	Receiving ship.
<i>Madagascar</i>	46	10.21	15.11.22	1167	
<i>Mæander</i>	46	2.29	-	1215	On the stocks.
<i>Melampus</i>	46	8.17	10.8.20	1089	
<i>Menelaus</i>	46	11.08	17.4.10	1077	Hospital ship.
<i>Mercury</i>	46	4.24	16.11.26	1084	
<i>Mermaid</i>	46	9.23	30.7.25	1085	
<i>Minerva</i>	46	10.17	13.6.20	1082	
<i>Naiad</i>	46	9.95	27.2.97	1020	
<i>Nemesis</i>	46	8.23	19.8.26	1168	
<i>Nereus</i>	46	1.19	30.7.21	1094	
<i>Nymphe</i> ⁽²⁾	46	1.11	13.4.12	1087	
<i>Penelope</i>	46	11.27	13.10.29	1091	
<i>Proserpine</i>	46	11.22	1.12.30	1078	
<i>Resistance</i>	46	3.04	10.8.05	1081	

Notes: (1) Ex *Scamander* renamed 11.12.12. (2) Ex *Nereide* renamed in 1811.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Rhin</i> ⁽¹⁾	46	Captured	27.7.06	1080	
<i>Seahorse</i>	46	11.24	22.7.30	1212	
<i>Seringapatam</i>	46	11.17	5.9.19	1152	
<i>Shannon</i>	46	8.04	5.5.06	1066	Receiving ship.
<i>Sirius</i>	46	9.11	11.9.13	1090	
<i>Stag</i>	46	4.28	2.10.30	1218	
<i>Surprise</i>	46	1.10	25.7.12	1072	Convict ship.
<i>Tenedos</i>	46	5.10	11.4.12	1083	
<i>Thalia</i>	46	2.28	12.1.30	1082	
<i>Thames</i>	46	6.21	21.8.23	1088	
<i>Thisbe</i>	46	8.20	9.9.24	1083	
<i>Topaze</i> ⁽²⁾	46	Captured	27.3.14	1060	Receiving ship.
<i>Trincomalee</i>	46	25.4.16	12.10.17	1066	
<i>Undaunted</i>	46	4.06	17.10.07	1086	
<i>Unicorn</i>	46	2.22	30.3.24	1084	
<i>Venus</i>	46	3.17	10.8.20	1069	
<i>Experiment</i>	44	6.81	27.11.84	890	Lazaretto.

Notes: (1) Ex French *Rhin* launched 15.4.02. (2) Ex French *Etoile* launched 28.7.13.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Forte</i>	44	3.11	21.5.14	1155	
<i>Weymouth</i> ⁽¹⁾	44	Purchased	5.04	826	Receiving ship.
<i>Astrea</i>	42	12.08	5.10	956	
<i>Barrosa</i>	42	10.11	21.10.12	947	Slop depot.
<i>Belvidera</i>	42	12.08	23.12.09	946	
<i>Brilliant</i>	42	11.13	28.12.14	954	
<i>Dartmouth</i>	42	7.04	28.8.13	952	Lazaretto.
<i>Dryad</i>	42	6.94	4.6.95	924	Receiving ship.
<i>Essex</i> ⁽²⁾	42	Captured	28.3.14	867	Convict ship.
<i>Ethalion</i>	42	5.00	29.7.02	996	
<i>Euryalus</i>	42	10.01	6.6.03	946	Convict ship.
<i>Galatea</i>	42	8.09	31.8.10	947	
<i>Havannah</i>	42	3.08	26.3.11	949	
<i>Iphigenia</i>	42	2.06	26.4.08	876	Lent to the Marine Society.
<i>Maidstone</i>	42	9.10	18.10.11	947	Receiving ship.
<i>Owen Glendower</i>	42	1.07	19.11.08	951	
<i>Pallas</i>	42	4.14	13.4.16	951	Coal depot.

Notes: (1) Ex East Indianman *Wellesley* launched in 1797. (2) Ex American *Essex* launched 30.9.99.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Phæbe</i>	42	6.94	24.9.95	926	Slop depot.
<i>Pyramus</i>	42	11.08	22.1.10	920	Receiving ship.
<i>Salsette</i> ⁽¹⁾	42	9.7.03	17.1.05	902	”
<i>Semiramis</i>	42	4.07	25.7.08	944	Depot.
<i>Tartar</i>	42	10.12	6.4.14	949	Receiving ship.
<i>Unite</i> ⁽²⁾	42	Captured	11.10.93	1040	Depot.
<i>Brune</i> ⁽³⁾	38	”	10.11.08	1090	”
<i>Imperieuse</i> ⁽⁴⁾	38	”	5.10.04	1046	Lazaretto.
<i>Perlin</i> ⁽⁵⁾	38	”	7.9.07	1204	”
<i>Tortoise</i> ⁽⁶⁾	38	Purchased	5.04	962	Coal depot.
<i>Active</i>	36	-	-	1622	To begin building.
<i>Amphion</i> ⁽⁷⁾	36	4.30	-	1284	On the stocks.
<i>Cambrian</i>	36	-	-	1622	To begin building.
<i>Castor</i>	36	1.30	2.5.32	1293	
<i>Chesapeake</i>	36	-	-	1622	To begin building.

Notes: (1) Ex *Pitt* renamed 19.2.07. (2) Ex *Imperieuse* renamed 3.9.03, ex French *Impérieuse* launched 11.7.87. (3) Ex French *Thétis* launched 16.6.88. (4) Ex *Iphigenia* renamed 3.12.05, ex Spanish *Medea* launched 9.3.97. (5) Ex Danish *Perlen* launched 14.7.04. (6) Ex *Sir Edward Hughes* renamed 28.11.07, ex East Indianman *Sir Edward Hughes* launched 22.3.84. (7) Ex *Ambuscade* renamed 31.3.31.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Constance</i>	36	-	-	1622	To begin building.
<i>Flora</i>	36	12.34	-	1622	On the stocks.
<i>Inconstant</i>	36	8.34	-	1422	" " "
<i>Pique</i>	36	7.33	21.7.34	1622	
<i>Santa Margarita</i> ⁽¹⁾	36	Captured	11.11.79	993	Lazaretto.
<i>Sybille</i>	36	12.35	-	1622	On the stocks.
<i>St Fiorenzo</i> ⁽²⁾	34	Captured	19.2.94	1032	Lazaretto.
<i>Ceylon</i> ⁽³⁾	32	Purchased	4.05	672	Receiving ship.
<i>Dover</i> ⁽⁴⁾	32	Captured	11.3.11	692	
<i>Narcissus</i>	32	2.00	12.5.01	894	Convict ship.
<i>Psyche</i>	32	31.10.14	25.12.14	769	At Lake Ontario.
<i>Aigle</i>	26	11.98	23.9.01	990	42-gun frigate cut down in 1831.
<i>Curacoa</i>	26	1.08	23.9.09	953	" " " " 1831.
<i>Magicienne</i>	24	4.11	8.8.12	949	" " " " 1831.
<i>Tribune</i>	24	7.01	5.7.03	884	" " " " 1832.

Notes: (1) Ex Spanish *Santa Margarita* launched 23.6.74. (2) Ex French *Minerve* launched 31.7.82. (3) Ex *Bombay* renamed 1.7.08, ex East India Co. cruiser *Bombay* launched in 1793. (4) Ex Italian *Bellona* laid down 22.4.07 and launched 14.6.08.

The Indian Navy included the frigate *Hastings* of 32 guns and 566 tons launched on 2 May 1821.

The British Navy adopted a single-calibre armament for its future battle-fleet in 1826. New ships of the line and frigates were to mount primarily 32-pounder guns. The medium- and light-weight weapons then coming into service would replace carronades and 24-pounder and 18-pounder guns. Existing 120-gun and 84-gun ships were rearmed with 32-pounders throughout, *Caledonia* being rebuilt in 1831 as 2712 tons to accommodate them. The largest 104-gun ships were similarly rearmed but retained carronades on their upper decks; all other ships of the line and frigates continued to carry mixed-calibre batteries. The armaments of the following modern ships were:

Name	Built	Battery
<i>Neptune</i>	1832	6 68-pdrs., 114 32-pdrs.
<i>Royal Frederick</i>	-	6 68-pdrs., 100 32-pdrs., 4 18-pdrs.*
<i>London</i>	-	4 68-pdrs., 88 32-pdrs.
<i>Asia</i>	1824	4 68-pdrs., 74 32-pdrs., 6 24-pdrs.
<i>Vanguard</i>	1835	4 68-pdrs., 72 32-pdrs., 4 18-pdrs.*
<i>Boscawen</i>	-	4 68-pdrs., 62 32-pdrs., 4 18-pdrs.*
<i>Barham</i> (razee)	1811	50 32-pdrs.
<i>Vernon</i>	1832	50 32-pdrs.
<i>Castor</i>	1832	36 32-pdrs.
<i>Pique</i>	1834	36 32-pdrs.
<i>Inconstant</i>	-	36 32-pdrs.

Apart from vessels which were already on the stocks, new construction for the British Navy in the decade after the Napoleonic War consisted principally of 120-gun ships, 84-gun ships, 52-gun frigates (originally 60 guns) and 46-gun frigates. Neither class of post-war frigate, however, was considered equal to a full battery of 32-pounders and no more were or-

* Poop deck carronades.

dered after 1825. The building of two 52-gun frigates was subsequently cancelled and later that of 14 46-gun frigates.*

Although none of the ships of the line and frigates completed since 1815 had been disposed of, two were lost accidentally. *Diamond* of 46 guns and 1076 tons was destroyed by fire at Portsmouth on 18 February 1827. *Thetis* of 46 guns also and 1086 tons was wrecked off Cape Frio on 5 December 1830. *Diamond* was laid down in August 1813 and launched on 16 January 1816. *Thetis* was laid down in December 1814 and launched on 1 February 1817.

* Three ships of the line and one 50-gun frigate were cancelled at the same time.

Name	Guns	Ordered	Cancelled	Tonnage
<i>Canada</i>	104	..	1832	2152
<i>Wolfe</i>	104	..	1831	2152
<i>Valiant</i>	76	9 June 1825	Nov. 1832	1925
<i>Indefatigable</i>	50	29 Nov. 1832	3 Mar. 1834	2082
<i>Jamaica</i>	52	1 July 1825	5 Mar. 1829	1487
<i>Liverpool</i>	52	9 June 1825	5 Mar. 1829	1487
<i>Euphrates</i>	46	22 Oct. 1822	7 Feb. 1831	1215
<i>Inconstant</i>	46	9 June 1825	9 Mar. 1832	1215
<i>Jason</i>	46	18 July 1817	7 Feb. 1831	1162
<i>Manilla</i>	46	5 Apr. 1819	21 Feb. 1831	1215
<i>Medusa</i>	46	18 July 1817	22 Apr. 1831	1063
<i>Orpheus</i>	46	9 June 1825	7 Feb. 1831	1215
<i>Pegasus</i>	46	23 July 1817	10 Jan. 1831	1063
<i>Pique</i>	46	25 Oct. 1820	16 June 1832	1215
<i>Severn</i>	46	9 June 1825	7 Feb. 1831	1215
<i>Spartan</i>	46	13 Sept. 1824	7 Feb. 1831	1215
<i>Statira</i>	46	23 July 1817	31 Aug. 1832	1215
<i>Theban</i>	46	13 Sept. 1824	7 Feb. 1831	1215
<i>Tiber</i>	46	9 June 1825	7 Feb. 1831	1215
<i>Tigris</i>	46	25 Oct. 1820	31 Aug. 1832	1215

Canada and *Wolfe* were on the stocks at Lake Ontario in March 1815 when construction was abandoned at the end of the war with the United States. *Valiant*, *Indefatigable*, *Jamaica* and *Liverpool* were never commenced. *Indefatigable* was to have been built to the design of *Vernon* from the timbers of the incomplete 80-gun ship *Boscawen*, but ultimately *Boscawen* was reordered as a modern 70-gun ship.

Below are dimensions of the chief ship of the line and frigate classes afloat (tonnage is load displacement as designed):

Class	Length	Breadth	Draught	Tonnage
Ships of 120 guns	205' 0"	54' 5"	25' 3½"	4589
Ships of 84 guns	196' 1½"	52' 0¼"	23' 4½"	3571
Ships of 74 guns	176' 0"	48' 2"	22' 4"	2998
Razees of 50 guns	173' 8"	48' 6"	..	2490
Frigates of 52 guns	172' 0"	44' 2"	19' 11"	2155
Frigates of 46 guns	150' 1½"	40' 3"	18' 4"	1450
Frigate razees	145' 0"	38' 6"	..	1280
<i>London</i> of 92 guns	205' 6"	54' 4"	23' 9"	4129
<i>Vernon</i> of 50 guns	176' 0"	52' 8½"	21' 3"	2564
<i>Castor</i> of 36 guns	159' 0"	43' 0"	19' 7"	1825

The dimensions of the latest British ships built and building were as follows (tonnage is builder's measurement tonnage):

Name	Length	Breadth	Depth	Tonnage
<i>Neptune</i>	205' 8"	55' 6½"	23' 2"	2705
<i>Royal Frederick</i>	204' 0"	60' 0"	23' 9"	3099*
<i>Vanguard</i>	190' 0"	56' 9"	23' 4"	2609
<i>Boscawen</i>	180' 0"	54' 0"	22' 4"	2212
<i>Pique</i>	160' 0"	48' 8"	14' 6"	1633
<i>Inconstant</i>	160' 1"	45' 5"	13' 7"	1422

New designs by William Symonds, Surveyor of the Navy since 1832, featured sharply rising floors and substituted great breadth for ballast to give stability. Amongst these were designs for *Royal Frederick*, *Vanguard*, *Boscawen*, *Vernon* and

* Load displacement to be 4475 tons at a draught of 23 feet 8 inches.

Pique. The modified form of underwater hull introduced by Symonds was expected to improve speed under sail.

The only fleet action following the end of the Napoleonic War was that fought at Navarin on 20 October 1827 during the Greek struggle for independence. Great Britain, France and Russia sought to impose an armistice in Greece through a joint display of naval power. The unintended result was a clash with the Ottoman fleet in the bay of Navarin. The allied fleet, commanded by Sir Edward Codrington, included 10 ships of the line and nine frigates. British heavy ships engaged were *Asia* 84 guns, *Albion* 74 guns, *Genoa* 74 guns, *Glasgow* 50 guns, *Cambrian* 48 guns and *Dartmouth* 42 guns. British light vessels comprised *Talbot* 28 guns, a sloop and three brigs. French heavy ships engaged were *Breslaw* 74 guns, *Scipion* 74 guns, *Trident* 74 guns, *Syrène* 60 guns and *Armide* 44 guns. Two French schooners also took part in the battle. Russian ships engaged were *Gangut* 84 guns, *Alexander Nevskiy* 74 guns, *Azov* 74 guns, *Iezekiil* 74 guns, *Konstantin* 44 guns, *Provornyy* 44 guns, *Elena* 36 guns and *Kastor* 36 guns. The Ottoman fleet consisted of three ships of the line, 18 frigates and 69 corvettes, brigs, schooners and fireships. Also present were 41 transports, eight of which were Austrian. The allies lost no ships, although damage to some was severe. Ottoman losses totalled one ship of the line, 13 frigates and 47 other vessels.*

Late in 1835 the East India Company contracted at Glasgow for the construction of the 300 horse-power steamship *Auckland* to measure 1000 tons and be fitted as a man-of-war.

* One frigate, one corvette, four brigs and four schooners remained afloat at the end of the battle. Another two ships of the line, four frigates, four corvettes, two brigs and a fireship that had been driven ashore were salvaged. One of these ships of the line, however, sank afterwards in September 1828 on passage to Alexandria.

APPENDIX

TO THE BRITISH NAVY

TABULATED overleaf are the weights carried by ships of the line and frigates in the British Navy. The total weight of guns, carronades and their carriages in each case is that for the following mixed-calibre batteries:

Class	32-pounder guns	24-pounder guns	18-pounder guns	12-pounder guns	9-pounder guns	68-pdr. carronades	42-pdr. carronades	32-pdr. carronades
Ship of 120 guns	30	68	4			2		16
Ship of 84 guns	30	40						14
Ship of 74 guns	28		28	6				12
Razee of 50 guns	50							
Frigate of 52 guns		36					16	
Frigate of 46 guns			28		4			14
Frigate razee	26							

Comparing these weights with those of equivalent vessels proposed in 1822 by Jean-Marguerite Tupinier for the French Navy,* British ships have heavier hulls but substantially less ballast. As already noted, increased breadth in the latest British designs reduced their requirement for ballast still further.

* See Appendix to the French Navy.

SUMMARY OF WEIGHTS FOR SHIPS OF THE LINE AND FRIGATES

Component	Ship of 120 guns		Ship of 84 guns		Ship of 74 guns		Razee of 50 guns		Frigate of 52 guns		Frigate of 46 guns		Frigate Razee	
	Tons	Cwt.	Tons	Cwt.	Tons	Cwt.	Tons	Cwt.	Tons	Cwt.	Tons	Cwt.	Tons	Cwt.
Hull at launch	2466	18	1882	6	1616	15	1447	18	1042	12	795	3	698	0
Masts and yards	89	14	89	0¼	64	5	66	5	61	13	40	5½	39	18
Spare gear and booms	16	11¾	16	11¾	12	12	12	12	12	12	7	10½	7	10
Rigging and blocks	59	11	56	12	54	9	56	17	51	9	31	8	31	8
Ship's sails	6	19¾	7	5¾	6	0½	6	14	6	1	3	15½	3	17
Spare sails	4	4	4	7	3	14¼	4	5	3	14	2	5½	2	6
Cables	69	13	66	6	56	1	56	1	56	1	39	3	35	15
Anchors	20	16½	17	8	15	5	15	5	12	10½	10	1	8	11
Ballast and tanks	373	0	247	0	196	0	100	0	187	0	107	10	84	0
Water	410	15	385	0	260	9	175	0	220	0	110	0	106	0
Fuel	100	0	78	0	52	0	45	0	38	0	32	0	21	0
Provisions	296	4	241	15	214	18	134	3	113	0	69	4	59	0
Crew and their effects	102	6	78	0	65	0	48	0	45	0	27	3	20	0
Gunner's stores	39	12½	27	2	22	2	18	0	16	0	12	11	11	10
Boatswain's and carpenter's stores	54	0	51	15	48	0	46	0	39	0	31	0	31	0
Guns, etc.	329	18	224	5	178	7	150	18	125	4	80	7	68	8
Powder, etc.	33	5	25	0	20	16½	18	12	13	18	11	18¾	9	5
Shot and cases	125	14	98	12	79	17	80	12	58	2	45	10	38	15
Boats	10	0¾	9	14¾	9	14¾	10	4¼	8	11½	8	16¼	3	17
Load displacement	4609	3¼	3606	0½	2976	6	2492	6¼	2110	8	1465	12	1280	0

THE FRENCH NAVY

IN November 1835 the French Navy included 55 ships of the line and 81 frigates afloat and on the stocks. Although 28 ships of the line and 34 frigates were building, many were at an advanced stage of construction and could be quickly launched in an emergency. It was French policy to keep ships on the stocks until needed to better preserve them.

In January 1793 the French Navy included 82 ships of 118 to 64 guns and 80 frigates of 44 to 24 guns. It suffered heavy losses in the Revolutionary War and by October 1801 it had declined to 46 ships of the line and 36 frigates afloat. Despite continuing serious losses in the Napoleonic War, new construction increased its strength. Ships were built not only in the arsenals of Toulon, Brest, Lorient, Rochefort and Cherbourg, and at other French ports, but at Genoa, Venice, Antwerp, Amsterdam and Rotterdam. The vessels of the Dutch fleet were acquired after the Kingdom of Holland, established by Napoleon in 1806, was annexed to France in 1810.

At the peace settlement of 1814 the French Navy was substantially reduced in size. Twenty-four ships of the line and 14 frigates were transferred to the Netherlands, 13 ships of the line and three frigates building at Antwerp were broken up, and Great Britain took possession of two ships of the line building at Genoa. Ten French and Franco-Italian ships of the line at Venice were transferred to Austria along with nine frigates.

By May 1814 the French Navy comprised 71 ships of 118 to 74 guns and 43 frigates of 44 to 36 guns. *Sans Pareil*, a 118-gun ship then under construction at Brest, was dismantled on the slip in June 1816. In November 1819 the navy included 60 ships of 118 to 74 guns and 36 frigates of 60 to 44 guns.

THE FRENCH NAVY

November 1835

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Océan</i> ⁽¹⁾	Vaisseaux du 1er rang	120	12.8.86	8.11.90	
<i>Majestueux</i> ⁽²⁾		120	21.3.94	18.4.02	
<i>Austerlitz</i>		120	10.4.06	15.8.08	
<i>Wagram</i> ⁽³⁾		120	4.09	1.7.10	
<i>Montebello</i>		120	10.10	6.12.12	
<i>Souverain</i>		120	4.13	25.8.19	
<i>Trocadéro</i> ⁽⁴⁾		120	9.13	14.4.24	
<i>Ville de Paris</i> ⁽⁵⁾		120	13.6.07	-	On the stocks.
<i>Louis XIV</i> ⁽⁶⁾		120	4.11	-	" " "
<i>Friedland</i> ⁽⁷⁾		120	1.5.12	-	" " "

Notes: (1) Ex *Peuple* renamed 30.5.95, ex *Montagne* renamed 25.5.95, ex *Côte d'Or* renamed 22.10.93, ex *Etats de Bourgogne* renamed 27.1.93. (2) Ex *République Française* renamed 5.2.03. (3) Ex *Monarque* renamed 15.2.10. (4) Ex *Formidable* renamed in 10.23. (5) Ex *Comte d'Artois* renamed 9.8.30, ex *Ville de Vienne* renamed 8.7.14. Napoleonic names were briefly re-named between 23.3.15 and 15.7.15 to ships that lost them the year before. (6) Ex *Tonnant* renamed 26.12.28. (7) Ex *Duc de Bordeaux* renamed 9.8.30, ex *Inflexible* renamed 1.5.21.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Formidable</i>	1er	120	-	-	To begin building.
<i>Commerce</i> ⁽¹⁾	1er	110	10.04	8.8.06	
<i>Tage</i> ⁽²⁾		100	26.8.24	-	On the stocks.
<i>Hercule</i> ⁽³⁾		100	6.24	-	" "
<i>Jemappes</i> ⁽⁴⁾		100	26.4.25	-	" "
<i>Fleurus</i> ⁽⁵⁾		100	4.25	-	" "
<i>Ulm</i> ⁽⁶⁾		100	13.6.25	-	" "
<i>Duguay-Trouin</i>		100	17.9.27	-	" "
<i>Annibal</i>		100	17.9.27	-	" "
<i>Turenne</i>		100	13.6.27	-	" "
<i>Henri IV</i>		100	17.7.29	-	" "
<i>Navarin</i>		100	5.32	-	" "
<i>Ajax</i>		100	17.8.32	-	" "
<i>Bucentaure</i>		100	22.2.33	-	" "
<i>Eole</i>		100	4.33	-	" "

Notes: (1) Ex *Commerce de Paris* renamed 11.8.30, ex *Ville de Paris* renamed 22.11.04. (2) Ex *Saint Louis* renamed 1.12.32, ex *Polyphème* renamed 26.12.28. (3) Projected as an 86-gun ship together with *Suffren*, *Duguesclin* and *Bayard* in 1822. New designs completed 24.4.24 for *Hercule* and 30.1.24 for *Suffren*, *Duguesclin* and *Bayard*. (4) Ex *Royal Charles* renamed 9.8.30, ex *Indomptable* renamed 4.11.24. (5) Ex *Dauphin Royal* renamed 9.8.30, ex *Briarée* renamed in 1825. (6) Ex *Lys* renamed 9.8.30.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Iéna</i> ⁽¹⁾		90	6.4.05	30.8.14	110-gun ship cut down in 1834.
<i>Suffren</i>		90	21.8.24	27.8.29	
<i>Duguesclin</i>		90	16.3.23	-	On the stocks.
<i>Bayard</i>		90	1.7.23	-	" "
<i>Alexandre</i>		90	27.7.27	-	" "
<i>Fontenoy</i>		90	7.27	-	" "
<i>Achille</i>		90	26.5.27	-	" "
<i>Inflexible</i>		90	18.8.27	-	" "
<i>Diomède</i>		90	2.3.32	-	" "
<i>Hector</i>		90	12.33	-	" "
<i>Sceptre</i>		90	9.35	-	" "
<i>Castiglione</i>		90	10.35	-	" "
<i>Argonaute</i>		90	-	-	To begin building.
<i>Diadème</i>		86	11.07	30.11.11	
<i>Duquesne</i> ⁽²⁾		86	1.10.10	12.10.13	
<i>Magnifique</i>		86	12.09	29.10.14	
<i>Santi Petri</i> ⁽³⁾		86	2.11.11	8.1.18	

Notes: (1) Ex *Duc d'Angoulême* renamed 9.8.30, ex *Iéna* renamed 8.7.14, ex *Victorieux* renamed in 1.07. (2) Ex *Zélandais* renamed 27.4.14. (3) Ex *Centaure* renamed in 10.23.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Neptune</i> ⁽¹⁾	3e	86	1.12.10	21.3.18	
<i>Algésiras</i>	3e	86	1.4.12	21.8.23	
<i>Jupiter</i>	3e	86	5.11.11	22.10.31	
<i>Breslaw</i> ⁽²⁾		82	3.05	3.5.08	
<i>Nestor</i>		82	2.09	21.5.10	
<i>Marengo</i>		82	19.9.06	12.10.10	
<i>Trident</i>		82	15.11.09	9.6.11	
<i>Ville de Marseille</i>		82	27.6.11	15.8.12	
<i>Scipion</i>		82	2.12	5.9.13	
<i>Alger</i> ⁽³⁾		82	9.12	26.5.15	
<i>Triton</i> ⁽⁴⁾		82	14	22.9.23	
<i>Couronne</i>		82	15.10.13	26.8.24	
<i>Généreux</i>		82	3.7.13	23.9.31	
<i>Amphitrite</i> ⁽⁵⁾	1er	58	4.09	23.2.12	82-gun ship cut down in 1823.
<i>Guerrière</i> ⁽⁶⁾	1er	58	12.09	31.5.12	" " " " 1821.
<i>Pallas</i> ⁽⁷⁾	1er	58	8.12	5.12.13	" " " " 1827.

Notes: (1) Ex *Brabançon* renamed 30.8.14. (2) Ex *Superbe* renamed 14.5.07. (3) Ex *Provence* renamed 15.7.30, ex *Kremlin* renamed 19.4.14; Napoleonic name restored 23.3.15 then briefly renamed *Hercule* between 20.4.15 and 15.7.15. (4) Ex *Vénitien* renamed 30.8.14. (5) Ex *Agamemnon* renamed in 1823. (6) Ex *Romulus* renamed 19.6.21. (7) Ex *Colosse* renamed 24.10.25.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Minerve</i> ⁽¹⁾	Frégates du 1er rang	58	13.1.12	18.6.18	82-gun ship cut down in 1833.
<i>Surveillante</i>		60	12.9.23	29.7.25	
<i>Iphigénie</i>		60	8.24	3.5.27	
<i>Terpsichore</i>		60	26.7.24	12.5.27	
<i>Indépendante</i> ⁽²⁾		60	13.4.24	28.6.28	
<i>Dryade</i> ⁽³⁾		60	18.10.24	12.7.28	
<i>Didon</i>		60	3.25	15.7.28	
<i>Melpomène</i>		60	17.5.25	28.7.28	
<i>Herminie</i>		60	25	25.8.28	
<i>Uranie</i>		60	9.26	28.7.32	
<i>Belle Poule</i>		60	1.4.28	26.3.34	
<i>Renomée</i>		60	8.7.26	-	
<i>Sémillante</i>		60	19.3.27	-	
<i>Andromaque</i>		60	29.5.27	-	
<i>Forte</i>		60	5.6.29	-	
<i>Persévérante</i>		60	1.10.29	-	
<i>Vengeance</i>		60	5.10.29	-	
On the stocks.					" "
					" "
					" "
					" "
					" "
					" "

Notes: (1) Ex *Glorieux* renamed 12.10.31, ex *Duc de Berry* renamed 9.8.30, ex *Glorieux* renamed 8.7.14. (2) Ex *Belle Gabrielle* renamed 9.8.30. (3) Ex *Caroline* renamed 9.8.30, ex *Dryade* renamed 12.7.28.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Entreprenante</i>	1er	60	5.10.29	-	On the stocks.
<i>Sémiramis</i>	1er	60	6.7.29	-	" "
<i>Duchesse</i>					
<i>d'Orléans</i>	1er	60	26.6.30	-	" "
<i>Amazône</i>		52	4.20	1.5.21	" "
<i>Venus</i>		52	2.20	12.3.23	
<i>Calypso</i> ⁽¹⁾		52	6.20	20.5.23	
<i>Syrène</i>		52	7.20	25.7.23	
<i>Atalante</i>		52	12.6.21	2.4.25	
<i>Artémise</i>		52	5.9.26	22.11.28	
<i>Andromède</i>		52	2.4.27	5.4.33	
<i>Gloire</i>		52	2.4.27	-	On the stocks.
<i>Poursuivante</i>		52	5.5.27	-	" "
<i>Niobé</i>		52	26.6.27	-	" "
<i>Cléopâtre</i>		52	1.9.27	-	" "

Notes: (1) Ex *Marie Thérèse* renamed 9.8.30, ex *Cérés* renamed 20.5.23. Three modern frigates, all of this class, had been struck from the list of the fleet: *Jeanne d'Arc* laid down 17.2.19 and launched 25.8.20, *Clorinde* laid down in 1.19 and launched 16.2.21 and *Vestale* laid down in 6.20 and launched 6.5.22. The first two were struck 26.10.33, the last was struck 26.5.34. *Didon* and *Melpomène* were originally begun in 1822 as members of the class but were restarted in 1825 to improved designs.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Danaé</i>	Frégates du 2e rang	52	27.9.27	-	On the stocks.
<i>Némésis</i>		52	14.9.28	-	" "
<i>Néréide</i>		52	1.8.28	-	" "
<i>Zénobie</i>		52	3.28	-	" "
<i>Alceste</i>		52	26.5.29	-	" "
<i>Pandore</i>		52	7.9.29	-	" "
<i>Sybille</i>		52	9.29	-	" "
<i>Reine Blanche</i>		52	27.6.30	-	" "
<i>Clorinde</i>		52	-	-	To begin building.
<i>Flore</i> ⁽¹⁾		46	14.12.02	3.7.03	
<i>Bellone</i> ⁽²⁾		46	5.06	18.4.07	
<i>Junon</i> ⁽³⁾		46	11.07	21.7.08	
<i>Proserpine</i> ⁽⁴⁾	Frégates du 3e rang	46	Captured	28.2.09	Prize.
<i>Aurore</i> ⁽⁵⁾		46	7.08	15.8.09	
<i>Médée</i>		46	09	5.5.11	
<i>Hermoine</i> ⁽⁶⁾		46	11.09	13.11.11	

Notes: (1) Ex *Hortense* renamed 14.3.14. (2) Ex *Pauline* renamed 11.4.14. (3) Ex *Amélie* renamed 11.4.14. (4) Ex British *Proserpine* laid down in 9.05 and launched 6.8.07. (5) Ex *Adrienne* renamed 11.4.14; renamed *Dauphine* between 5.9.29 and 9.8.30. (6) Ex *Illyrienne* renamed 30.8.14.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Galathée</i>	Frégates du 3 ^e rang	46	10	3.5.12	On the stocks. "
<i>Victoire</i> ⁽¹⁾		46	9.10	25.8.16	
<i>Constance</i>		46	17.6.12	2.9.18	
<i>Thétis</i>		46	10.13	3.5.19	
<i>Astrée</i>		46	6.12	28.4.20	
<i>Armide</i>		46	6.12	1.5.21	
<i>Magicienne</i>		46	1.13	11.4.23	
<i>Pénélope</i>		46	1.9.30	-	
<i>Héliopolis</i>		46	8.30	-	
<i>Erigone</i> ⁽²⁾		46	25.9.32	-	
<i>Charte</i> ⁽³⁾		46	26.7.33	-	
<i>Africaine</i>		46	1.2.35	-	
<i>Pomone</i>		46	35	-	
<i>Jeanne d’Arc</i>		46	26.7.35	-	
<i>Antigone</i>	To begin building.	46	-	-	" "
<i>Psyché</i>		46	-	-	" "
<i>Nymphe</i>		46	-	-	" "

Note: (1) Ex *Duchesse de Berry* renamed 9.8.30, ex *Didon* renamed 13.8.16. (2) Ex *Oriflamme* renamed 24.8.31. (3) Ex *Douze Avril* renamed 9.8.30.

Name	Rate	Guns	Laid Down	Launched	Remarks
<i>Thémis</i>	3e Frégates à voiles	46	-	-	To begin building.
<i>Circé</i>		28	2.10	15.12.11	46-gun frigate cut down in 1832.
<i>Aréthuse</i>		28	4.09	11.5.12	" " " " 1833.
<i>Cybèle</i>		28	4.10	11.4.15	" " " " 1835.
<i>Héroïne</i>	Corvettes à gaillards	32	21.11.27	8.5.30	
<i>Ariane</i>		32	1.8.27	22.5.30	
<i>Thisbé</i>		32	6.28	21.6.30	
<i>Sapho</i>		32	25.7.28	23.8.31	
<i>Boussole</i>		32	26.8.30	21.5.33	
<i>Alcmène⁽¹⁾</i>		32	12.1.30	20.9.34	
<i>Sabine</i>		32	29.8.31	20.9.34	
<i>Berceau</i>		32	9.8.33	15.10.34	
<i>Cornaline</i>		32	26.7.33	29.11.34	
<i>Embuscade</i>		32	1.9.32	-	On the stocks.

Note: (1) Ex *Martinique* renamed 3.8.31.

Ships of 100 guns:	66 30-pdrs., 4 18-pdrs.,
	30 30-pdr. carronades.
Ships of 90 guns:	62 30-pdrs., 4 18-pdrs.,
	24 30-pdr. carronades.
Ships of 82 guns:	58 30-pdrs., 4 18-pdrs.,
	20 30-pdr. carronades.
Frigates of 60 guns:	30 30-pdrs., 2 18-pdrs.,
	28 30-pdr. carronades.
Frigates of 52 guns:	28 24-pdrs., 2 18-pdrs.,
	22 24-pdr. carronades.
Frigates of 46 guns:	30 18-pdrs., 16 30-pdr. carronades.
Corvettes of 32 guns:	4 18-pdrs., 28 30-pdr. carronades.

A decision of September 1828 confirmed the armaments of new vessels and specified that the ships of the line and frigates of the existing fleet were to be armed as shown below:

Ships of 120 guns:	32 36-pdrs., 34 24-pdrs., 4 18-pdrs.,
	50 36-pdr. carronades.
Ships of 110 guns:	30 36-pdrs., 32 24-pdrs., 4 18-pdrs.,
	44 36-pdr. carronades.
Ships of 86 guns:	30 36-pdrs., 32 24-pdrs., 4 18-pdrs.,
	20 36-pdr. carronades.
Ships of 82 guns:	28 36-pdrs., 34 18-pdrs.,
	20 36-pdr. carronades.
Razees of 58 guns:	28 36-pdrs., 2 18-pdrs.,
	28 36-pdr. carronades.
Frigates of 58 guns:	30 24-pdrs., 2 18-pdrs.,
	26 24-pdr. carronades.
Frigates of 46 guns:	30 18-pdrs., 16 24-pdr. carronades.

Construction of 46-gun frigates did not recommence until 1830, and the 120-gun *Formidable* was the only first-rate ship

to be ordered for the post-war fleet. *Navarin* of 120 guns also when originally projected in 1828, together with *Formidable*, was laid down as a 100-gun vessel. Another four ships of the line projected in 1828 were abandoned before work on them started: *Agamemnon* and *Hector* of 100 guns, and *Ajax* and *Diomede* of 90 guns. Similarly abandoned were four frigates projected in 1829: *Jeanne d'Albret* and *Valentine* of 60 guns, and *Bouvines* and *Dame de Beaujeu* of 46 guns. The last was renamed *Psyché* on 9 August 1830. None of the ships of the line or frigates launched since 1815 had been lost accidentally.

APPENDIX

TO THE FRENCH NAVY

IN 1822 Jean-Marguerite Tupinier (later Baron Tupinier), then a Director of Naval Construction, proposed extensive changes to the types of vessel to be built for the navy. For future first-rates he would keep the current design prepared originally in 1786 for *Commerce de Marseille* and used since for 15 vessels in all.* For other ships of the line he wished to introduce two new and powerful classes, one of 102 guns and one of 96 guns. He would also introduce three new classes of 60-gun frigate armed respectively with 36-pounder guns and carronades, 30-pounder guns and carronades, and 24-pounder guns and carronades. The most important features of the vessels Tupinier proposed are tabulated opposite.

Simultaneously, he wished to replace 36-pounder guns and carronades with 30-pounders in existing 86-gun and 82-gun ships to raise the height of their batteries. He would rearm the former with 30 30-pounders, 32 24-pounders and 24 30-pounder carronades. The latter he would rearm with 28 30-pounders, 30 18-pounders and 24 30-pounder carronades, cutting down those in need of repair into frigates as *Guerrière*. Existing 58-gun frigates, which proved to have a greater displacement than intended, he would rearm with either 30 24-pounders and 20 24-pounder carronades or two 18-pounders and 58 36-pounder carronades. Existing 46-gun frigates he would rearm with two 18-pounders and 48 36-pounder carronades.

* *Sans Pareil* is excluded as it was broken up prior to completion. Laid down in April 1811, *Sans Pareil* was renamed *Roi de Rome* in January 1813 and *Sans Pareil* again in April 1814. It reverted to *Roi de Rome* during the Hundred Days of 1815.

FUTURE VESSELS PROPOSED BY J.-M. TUPINIER

Principal Dimensions	Ship of 102 guns	Ship of 96 guns	36-pdr. Frigate	30-pdr. Frigate	24-pdr. Frigate
Length on the waterline	206.69'	200.13'	183.73'	177.17'	173.88'
Breadth moulded	53.81'	53.15'	47.24'	46.26'	44.95'
Depth amidships	27.03'	26.64'	23.29'	22.90'	22.47'
Mean draught of water	25.46'	24.77'	21.33'	20.73'	20.18'
Weight of hull (metric tons)	2100	2000	1345	1200	1075
Ordnance, powder, shot, etc. (ditto)	537	488	314	272	230
Masts, rigging and stores (ditto)	385	360	242	216	190
Crew and their effects (ditto)	89	83	51	48	46
Provisions and fuel (ditto)	621*	574*	442†	415†	397†
Water for 120 days and tanks (ditto)	338	314	194	182	175
Boats and other articles (ditto)	40	36	25	23	21
Ballast (ditto)	500	400	230	210	200
Total displacement (ditto)	4610	4255	2843	2566	2334
36-pounder long guns	32	30	30	-	-
30-pounder long guns	34	-	-	30	-
24-pounder long guns	-	32	-	-	30
36-pounder carronades	36	34	30	-	-
30-pounder carronades	-	-	-	30	-
24-pounder carronades	-	-	-	-	30

* For eight months.

† For ten months.

REVISED PROPOSALS FOR FUTURE VESSELS

Principal Dimensions	Ship of 120 guns	Ship of 102 guns	Ship of 86 guns	30-pdr. Frigate	24-pdr. Frigate
Length on the waterline	209.32'	203.41'	193.57'	177.17'	173.88'
Breadth moulded	53.81'	53.48'	50.85'	46.26'	44.95'
Depth amidships	27.23'	26.90'	25.79'	22.90'	22.47'
Mean draught of water	25.92'	24.93'	23.75'	20.73'	20.18'
Weight of hull (metric tons)	2200	2000	1700	1200	1075
Ordnance, powder, shot, etc. (ditto)	557	502	441	272	230
Masts, rigging and stores (ditto)	396	360	306	216	190
Crew and their effects (ditto)	99	87	78	48	46
Provisions and fuel (ditto)	525*	608†	546†	415‡	397‡
Water for 120 days and tanks (ditto)	376	330	298	182	175
Boats and other articles (ditto)	40	38	33	23	21
Ballast (ditto)	650	450	380	210	200
Total displacement (ditto)	4843	4375	3782	2566	2334
30-pounder long guns	32	32	30	30	-
30-pounder short guns	34	34	32	-	-
24-pounder long guns	-	-	-	-	30
30-pounder carronades	54	36	24	30	-
24-pounder carronades	-	-	-	-	30

* For six months.

† For eight months.

‡ For ten months.

Tupinier offered several alternative armaments for both his proposed ships and those in existence, recasting his plans later in the year to take account of the recent introduction of short 30-pounder guns and what he saw as the likely discarding of the 36-pounder. There would, therefore, be no new frigates mounting 36-pounder guns and carronades. He would slightly increase the depth of the 120-gun ship, now to be armed exclusively with 30-pounder guns and carronades, to raise its batteries. There would be little difference in power between a 102-gun and a 96-gun ship if both were to mount 30-pounders so he would retain only the former. This 102-gun ship would, in fact, be not much larger than the original 96-gun vessel. To fill the resulting gap between the 102-gun ship and 60-gun frigate he proposed a ship of 86 guns similar in size to the existing class. There would thus still be five new designs including the modified 120-gun ship. Their specifications appear opposite. In these circumstances he would rearm 46-gun frigates with 50 30-pounder carronades.

While new construction did not follow his plans in detail, the ships begun after 1822 did conform to one of several enlarged and heavily-armed types as he envisaged.

THE RUSSIAN NAVY

THE BALTIC FLEET

Name	Guns	Launched	Remarks
<i>Rossiya</i>	120	-	On the stocks.
<i>Imperator</i> <i>Alexander</i>	110	25.10.27	
<i>Imperator Pyotr I</i>	110	14.5.29	
<i>Svyatoy Georgiy</i> <i>Pobedonosets</i>	110	27.10.29	
<i>Kronshtadt</i>	84	3.9.22	
<i>Emgeiten</i>	84	11.10.28	
<i>Imperatritsa</i> <i>Alexandra</i>	84	31.10.27	
<i>Gangut</i>	84	1.10.25	Under repair.
<i>Lefort</i>	84	9.8.35	
<i>Ne Tron' Menya</i>	84	13.5.32	
<i>Poltava</i>	84	24.10.29	
<i>Vladimir</i>	84	22.8.33	
<i>Vola</i>	84	-	On the stocks.
<i>Arsis</i>	74	11.10.28	
<i>Berezino</i>	74	6.9.30	
<i>Borodino</i>	74	4.6.30	
<i>Brien</i>	74	22.9.29	
<i>Ferchampenuaz</i>	74	28.9.33	
<i>Iezekiil'</i>	74	7.6.26	
<i>Katsbakh</i>	74	6.6.28	
<i>Konstantin</i>	74	-	On the stocks.
<i>Krasnoy</i>	74	4.6.30	

Name	Guns	Launched	Remarks
<i>Kulm</i>	74	6.6.28	
<i>Leiptsig</i>	74	11.5.36	
<i>Lesnoe</i>	74	2.6.29	
<i>Narva</i>	74	2.6.29	
<i>Oryol</i>	74	2.6.33	
<i>Ostrolenka</i>	74	2.6.34	
<i>Pamyat' Azova</i>	74	2.6.31	
<i>Prokhor</i>	74	4.6.23	
<i>Smolensk</i>	74	6.9.30	
<i>Sysoy Velikiy</i>	74	3.6.22	
<i>Velikiy Knyaz'</i> <i>Mikhail</i>	74	27.10.27	
<i>Alexander Nevskiy</i>	56	19.10.26	74-gun ship cut down in 1832.
<i>Pallada</i>	52	13.9.32	
<i>Alexandra</i>	44	2.6.27	
<i>Amfitrida</i>	44	29.5.32	
<i>Avrora</i>	44	8.8.35	
<i>Bellona</i>	44	28.5.30	
<i>Diana</i>	44	5.9.32	
<i>Ekaterina</i>	44	22.9.28	
<i>Elisaveta</i>	44	30.8.28	
<i>Kastor</i>	44	2.6.31	
<i>Konstantin</i>	44	8.6.24	
<i>Mariya</i>	44	2.6.27	
<i>Melpomena</i>	44	11.5.36	
<i>Neva</i>	44	19.8.29	
<i>Ol'ga</i>	44	2.6.27	
<i>Pomona</i>	44	6.7.30	
<i>Prints Oranskiy</i>	44	25.7.29	

Name	Guns	Launched	Remarks
<i>Prozerpina</i>	44	12.9.32	Purchased in 1830.
<i>Tserera</i>	44	19.7.30	
<i>Venus</i>	44	1.10.29	
<i>Yunona</i>	44	25.6.30	
<i>Elena</i>	36	2.6.25	
<i>Knyaz Varshavskiy</i>	30	-	

Notes: *Kronshtadt* was built as *Emgeiten* and renamed in 1829. *Knyaz Varshavskiy* was formerly the Mexican corvette *Tepeyac* and was built at Philadelphia in 1828.

THE BLACK SEA FLEET

Name	Guns	Launched	Remarks
<i>Tri Svyatitelya</i>	120	-	On the stocks.
<i>Varshava</i>	120	18.11.33	
<i>Parizh</i>	110	5.10.26	
<i>Adrianopol'</i>	84	23.11.30	
<i>Anapa</i>	84	19.9.29	
<i>Ches'ma</i>	84	6.7.28	On the stocks.
<i>Imperatritsa</i> <i>Ekaterina II</i>	84	12.8.31	
<i>Imperatritsa</i> <i>Mariya</i>	84	29.10.27	
<i>Pamyat' Evstafiya</i>	84	5.9.30	
<i>Panteleymon</i>	84	20.11.24	
<i>Siliastriya</i>	84	23.11.35	
<i>Sultan Mahmud</i>	84	-	
<i>Ioann Zlatoust</i>	74	19.9.25	
<i>Parmen</i>	74	30.10.23	

Name	Guns	Launched	Remarks
<i>Pimen</i>	74	14.9.23	
<i>Agatopol'</i>	60	23.11.34	
<i>Arkhipelag</i>	60	11.8.29	
<i>Burgas</i>	60	19.11.32	
<i>Enos</i>	60	22.10.31	
<i>Erivan'</i>	60	11.6.29	
<i>Tenedos</i>	60	16.11.28	
<i>Varna</i>	60	28.8.30	
<i>Anna</i>	44	31.5.29	
<i>Brailov</i>	44	-	On the stocks.
<i>Flora</i>	44	19.5.18	
<i>Knyaginya Lovich</i>	44	7.6.28	
<i>Shtandart</i>	44	12.6.24	

Notes: *Parizh* was built as *Derbent* and renamed in 1827. *Anna* and *Knyaginya Lovich* were transferred from the Mediterranean to the Black Sea in July 1833.

In 1791 the Baltic Fleet included 50 ships of 110 to 66 guns and 27 frigates of 44 to 28 guns; the Black Sea Fleet then included 10 ships of the line and 12 frigates. By 1805 the Baltic Fleet comprised 32 ships of 130 to 66 guns and 12 frigates of 50 to 32 guns. In the Black Sea were 12 ships of 110 to 54 guns and four frigates of 50 to 32 guns.

In September 1827 a Russian squadron from the Baltic, soon to fight at Navarin, entered the Mediterranean. For the next six years Russia maintained a naval presence there. The squadron at first consisted of four ships of the line, four frigates and a corvette, but was raised to eight ships of the line and seven frigates when war with Turkey broke out in 1828. A blockade of the Dardanelles was established while the Black Sea Fleet guarded the Bosphorus and operated against Turkish

coastal positions. Although the Russian frigate *Rafail* was captured on 23 May 1829, the brig *Merkuriy* received only slight damage three days afterwards in action with two Turkish ships of the line. Turkey accepted moderate peace terms later that year.

In 1830 the fleets in the Baltic and Mediterranean included *Imperator Alexander* 110, *Imperator Pyotr I* 110, *Gangut* 84, *Imperatritsa Alexandra* 84, *Kronshtadt* 84, *Alexander Nevskiy* 74, *Azov* 74, *Ferchampenuaz* 74, *Iezekiil'* 74, *Svyatoy Andrey* 74, *Sysoy Velikiy* 74, *Tsar' Konstantin* 74, *Velikiy Knyaz' Mikhail* 74, *Vladimir* 74, *Emmanuil* 64, *Alexandra* 44, *Diana* 44, *Knyaginya Lovich* 44, *Konstantin* 44, *Mariya* 44, *Merkuriy* 44, *Ol'ga* 44, *Provornyy* 44, *Kastor* 36, *Elena* 36 and *Kreyser* 36. In the Black Sea were *Imperator Frants* 110, *Parizh* 110, *Anapa* 84, *Ches'ma* 84, *Imperatritsa Mariya* 84, *Panteleymon* 84, *Ioann Zlatoust* 74, *Nord-Adler* 74, *Parmen* 74, *Pimen* 74, *Skoryy* 74, *Arkhipelag* 60, *Erivan'* 60, *Tenedos* 60, *Evstafiy* 44, *Flora* 44, *Pospeshnyy* 44 and *Shtandart* 44. On 20 October 1831 *Ferchampenuaz* was burnt to the waterline at Cronstadt.

Russian vessels were to mount the following armaments. Four 48-pounder howitzers had replaced an equal number of 36-pounder guns on the lower decks of all ships of the line.

110-gun ship:	118 guns, 30 36-pdrs., 32 24-pdrs., 32 12-pdrs., 24 24-pdr. carronades.
84-gun ship:	96 guns, 30 36-pdrs., 32 24-pdrs., 34 12-pdrs. 90 guns, 30 36-pdrs., 36 24-pdrs., 24 24-pdr. carronades.
74-gun ship:	82 guns, 28 36-pdrs., 34 24-pdrs., 20 24-pdr. carronades. 80 guns, 28 36-pdrs., 30 24-pdrs., 22 24-pdr. carronades.

- 60-gun frigate: 62 guns, 34 24-pdrs., 28 24-pdr. carronades.
52 guns, 52 24-pdrs.
- 44-gun frigate: 56 guns, 34 24-pdrs., 22 24-pdr. carronades.
54 guns, 30 24-pdrs., 24 24-pdr. carronades.

Ne Tron' Menya mounted an experimental, single-calibre battery composed of 60 36-pounders, 24 36-pounder carronades, four 18-pounders and four 48-pounder howitzers. As a frigate, *Alexander Nevskiy* mounted 30 36-pounders and 32 36-pounder carronades.

Below are listed the dimensions of Russian ship of the line and frigate classes in 1836 (tonnage is load displacement):

Name	Guns	Length	Breadth	Depth	Tonnage
<i>Warsaw</i>	120	205.89'	55.64'	22.26'	4857.1
<i>Brave</i>	120	201.60'	52.40'	21.60'	4184.4
<i>Emperor Alexander</i>	110	197.16'	53.08'	21.33'	4244.6
<i>Empress Catherine</i>	84	191.93'	52.21'	21.18'	3516.6
<i>Empress Mary</i>	84	196.00'	51.80'	20.63'	3575.5
<i>Ezekiel</i>	80	176.70'	49.33'	19.40'	2918.7
<i>Smolensk</i>	74	177.12'	49.60'	20.00'	2876.7
<i>Vienna</i>	60	170.86'	43.82'	17.52'	1883.7
<i>Penelope</i>	46	152.67'	39.92'	16.65'	1452.5
<i>Mary</i>	44	160.00'	42.10'	16.66'	1664.6
<i>Swift</i>	44	153.70'	40.30'	16.50'	1419.1

The steam frigate *Bogatyr'* of 240 horse-power, also building for the Baltic Fleet, was launched on 20 August. *Bogatyr'* had been laid down on 7 November 1835 at St Petersburg.

THE OTTOMAN NAVIES

THE TURKISH NAVY

IN November 1837 the Turkish Navy included 15 ships of 126 to 74 guns and 15 frigates of 60 to 36 guns. Eight ships of the line and 10 frigates were in the Bosphorus or at Constantinople:

<i>Mahmudiye</i>	126 guns, 126 30-pdrs.
<i>Selimiye</i>	126 guns.
<i>Fethiye</i>	80 guns, 30 36-pdrs., 30 24-pdrs., 20 18-pdrs.
— (1)	76 guns.
<i>Mukaddime-i Hayr</i>	76 guns, 30 36-pdrs., 30 18-pdrs., 14 12-pdrs., 2 8-pdrs.
<i>Rehber-i Nusret</i>	76 guns.
<i>Burc-ı Zafer</i>	74 guns, 28 36-pdrs., 30 18-pdrs., 12 24-pdrs., 4 carronades.
<i>Nusretiye</i> ⁽²⁾	74 guns, 74 32-pdrs.
<i>Hıfz-ı Rahman</i>	52 guns, 52 24-pdrs.
<i>Kaid-i Zafer</i>	52 guns, 52 24-pdrs.
<i>Nesîm-i Zafer</i> ⁽³⁾	52 guns, 52 24-pdrs.
<i>Şeref-resân</i>	52 guns, 52 24-pdrs.
— (4)	50 guns, 50 24-pdrs.
<i>Avnillah</i>	50 guns, 50 24-pdrs.
<i>Yâver-i Tevfik</i>	50 guns, 50 24-pdrs.
<i>Fazlullah</i> ⁽³⁾	48 guns, 48 18-pdrs.
<i>Mazhar-ı Tevfik</i>	48 guns, 48 18-pdrs.
<i>Zafer</i> ⁽⁵⁾	48 guns, 48 18-pdrs.

Notes: (1) New, launched in 1837 at Izmit. (2) New, launched in 1835 at Constantinople. (3) Laid up. (4) New, launched in 1837 at Constantinople. (5) At Tripoli.

One ship of the line, in addition to those afloat, was rebuilding. On the stocks were another ship of the line and a frigate. The dimensions of two of the largest Turkish vessels were:

Name	Length	Breadth	Depth
<i>Mahmudiye</i>	223' 0"	61' 8"	30' 0"*
<i>Nusretiye</i>	220' 0"	50' 6"	24' 0"

The Turkish Navy totalled 32 ships of 76 to 50 guns and 26 frigates of 40 to 24 guns in 1787, of which six ships of the line and two frigates were building. Launched at Constantinople on 22 February 1797 was the 128-gun *Selimiye*. In 1806 it included 25 ships of 128 to 50 guns and 20 frigates of 48 to 30 guns, of which five ships of the line were on the stocks.

Due to its comparatively few losses, the Turkish Navy was one of the strongest in Europe following the Napoleonic War. In 1820 it comprised four ships of 124 to 110 guns, three ships of 80 guns, 12 ships of 74 guns, two frigates of 50 guns and 16 frigates of 48 guns. Two ships of the line and two frigates were building. The Turkish fleet which fought at Navarin on 20 October 1827 included the 84-gun ship *Kûh-ı Revân*, the 74-gun ships *Burc-ı Zafer* and *Fâtih-i Bahrî*, and 12 frigates of 54 to 44 guns. Only *Kûh-ı Revân*, *Burc-ı Zafer* and the frigates *Fevz-i Nusret*, *Feyz-ı Mirâc*, *Kaid-i Zafer* and *Keyvân-ı Bahrî* survived the battle. In April 1828 Russia declared war on Turkey. Turkish squadrons sortied from Constantinople several times, capturing the frigate *Rafail* on 23 May 1829. They did not attempt, however, to disrupt Russian naval or military operations. Peace was concluded in September.

A large programme of new construction began shortly after Navarin and the immense *Mahmudiye* was launched at Con-

* Burthen measured 3934 tons and mean draught 27 feet 4 inches.

stantinople on 31 December 1828. The fleet in the Bosphorus and at Constantinople in 1834 consisted of *Mahmudiye* 126 guns, *Mesudiye* 126 guns, *Fethiye* 80 guns, *Mukaddime-i Hayr* 76 guns, *Peyk-i Meserret* 76 guns, *Rehber-i Nusret* 76 guns, *Burc-ı Zafer* 74 guns, *Hıfz-ı Rahman* 52 guns, *Nesîm-i Zafer* 52 guns, *Şeref-resân* 52 guns and *Mazhar-ı Tevfîk* 48 guns. Then laid up at Constantinople were *Kaid-i Zafer* 52 guns, *Pertev-feşân* 52 guns, *Avnillah* 50 guns, *Yâver-i Tevfîk* 50 guns and *Fazlullah* 48 guns. Three 74-gun ships were on the stocks.

THE EGYPTIAN NAVY

In December 1837 the Egyptian Navy included, afloat and building, 12 ships of the line, seven frigates and a steam frigate:

<i>Akka</i>	104 guns, 104 30-pdrs.	Launched 25.3.33.
<i>Misr</i>	104 guns, 68 30-pdrs., 36 30-pdr. carronades.	Launched 30.7.32.
<i>Halab</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.	Launched 16.4.37.
<i>Homs</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.	Launched 18.7.33.
<i>Iskandariyya</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.	Launched 3.1.32.
<i>Mahalla al-Kubra</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.	Launched 3.1.31.
<i>Mansura</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.	Launched 21.5.31.
<i>No. 10</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.	On the stocks.

<i>No. 11</i>	100 guns,	66 30-pdrs.,	On the stocks.
		34 30-pdr. carronades.	
<i>No. 12</i>	100 guns,	66 30-pdrs.,	On the stocks.
		34 30-pdr. carronades.	
<i>Baylan</i>	92 guns,	60 30-pdrs.,	Launched in 1835.
		32 30-pdr. carronades.	
<i>Abu Qir</i>	88 guns,	58 30-pdrs.,	Launched 23.4.32.
		30 30-pdr. carronades.	
<i>Buhayra</i>	60 guns,	30 24-pdrs.,	Launched in 11.27.
		30 24-pdr. carronades.	
<i>Kafr al-Shaykh</i>	60 guns.		Acquired in 1830.
<i>Minufiyya</i>	60 guns,	60 30-pdrs.	Launched in 8.36.
<i>Rashid</i>	60 guns,	30 24-pdrs.,	Launched 10.5.27.
		30 24-pdr. carronades.	
<i>Zir al-Jihad</i>	60 guns,	30 24-pdrs.,	Launched 9.11.26.
		30 24-pdr. carronades.	
<i>Dumyat</i>	56 guns,	28 24-pdrs.,	Launched 5.2.30.
		28 24-pdr. carronades.	
<i>Miftah al-Jihad</i>	..	Frigate razee.	Acquired 19.3.31.
<i>Nile</i>	2 guns.	Steamer.	Launched 7.6.34.

Notes: *Akka* (Acre) and *Misr* (Cairo) were built as 136-gun ships but cut down by a deck. *Baylan* was rated as 80 guns, *Abu Qir* as 74 guns and *Dumyat* as 52 guns. *Kafr al-Shaykh* was launched in 1828 as the merchant ship *Kola*. *Miftah al-Jihad* was originally armed with 56 guns: 28 18-pounders and 28 12-pounders. *Nile* was fitted with 240 h.p. machinery and designed for two heavy guns and 20 carronades.

Egyptian ships of the line were all built at Alexandria. The frigates had been built in a variety of ports. *Buhayra* was built at Marseilles, *Kafr al-Shaykh* at Archangel, *Minufiyya* and *Dumyat* at Alexandria, *Rashid* at Venice and *Zir al-Jihad* at Leghorn. *Miftah al-Jihad* was a former Algerine frigate which had been transferred to Egypt after the French occupation of Algiers. *Nile* was built in London.

The following batteries were those actually mounted aboard Egyptian ships of the line and frigates in December 1837:

<i>Akka</i>	100 guns, 100 30-pdrs.
<i>Misr</i>	102 guns, 68 30-pdrs., 34 30-pdr. carronades.
<i>Halab</i>	.. New, fitting out.
<i>Homs</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.
<i>Iskandariyya</i>	98 guns, 64 30-pdrs., 34 30-pdr. carronades.
<i>Mahalla</i>	
<i>al-Kubra</i>	100 guns, 66 30-pdrs., 34 30-pdr. carronades.
<i>Mansura</i>	96 guns, 64 30-pdrs., 32 30-pdr. carronades.
<i>Baylan</i>	86 guns, 58 30-pdrs., 28 30-pdr. carronades.
<i>Abu Qir</i>	58 guns, 58 30-pdrs.
<i>Buhayra</i>	60 guns, 30 24-pdrs., 30 24-pdr. carronades.
<i>Kafr al-Shaykh</i>	.. Disarmed, transport service.
<i>Minufiyya</i>	60 guns, 60 30-pdrs.
<i>Rashid</i>	60 guns, 30 24-pdrs., 30 24-pdr. carronades.
<i>Zir al-Jihad</i>	60 guns, 30 24-pdrs., 30 24-pdr. carronades.
<i>Dumyat</i>	56 guns, 28 24-pdrs., 28 24-pdr. carronades.
<i>Miftah al-Jihad</i>	.. Disarmed, transport service.
<i>Nile</i>	Steamer, 2 10" shell guns.

The Egyptian fleet suffered heavily at Navarin. Of its four frigates present, three were lost: *Murshid al-Jihad* of 60 guns launched at Marseilles on 3 October 1826, *Ihsaniyya* of 58 guns launched at Rhodes as a gift from the Sultan on 24 May 1824 and *Surayya*, also of 58 guns, launched at Alexandria in 1819. The 60-gun *Zir al-Jihad* alone survived the battle and returned to Egypt in December 1827.

The rebuilding of the Egyptian Navy commenced in 1828. The Governor of Egypt, Mehmed Ali, ruled extensive territories in Africa and Arabia almost independently of the Sultan. He now planned a powerful fleet for his projected campaign to

conquer Syria. Afloat by May 1833 were *Akka* 136 guns, *Misr* 136 guns, *Iskandariyya* 100 guns, *Mahalla al-Kubra* 100 guns, *Mansura* 100 guns, *Abu Qir* 74 guns, *Buhayra* 60 guns, *Kafr al-Shaykh* 60 guns, *Rashid* 60 guns, *Zafariyya* 60 guns, *Zir al-Jihad* 60 guns, *Dumyat* 52 guns and *Miftah al-Jihad* 48 guns. On the stocks were *Homs* 100 guns, *Konya* 100 guns and *Baylan* 80 guns. The frigate *Zafariyya*, launched on 15 November 1829 at Leghorn, was accidentally destroyed by fire at Alexandria on 11 February 1834; *Konya* was renamed *Halab*.

NORTH AFRICAN NAVIES

In 1825 the Algerine fleet comprised five frigates: *Miftah al-Jihad* of 62 guns, *Tulûniyya* of 50 guns, *Nafar Iskandar* of 40 guns, *Mashar Tawfiq* of 36 guns and *Fasiyya* of 36 guns. Of the larger vessels, *Miftah al-Jihad* was a gift from the Sultan in 1818, *Tulûniyya* was built at Toulon in 1822 and *Nafar Iskandar* was built at Algiers in 1818. These acquisitions were in response to the destruction of the fleet by the Anglo-Dutch expedition of 1816. One frigate of 50 guns, one of 46 guns, two of 44 guns and one of 38 guns had been burnt in the harbour together with four corvettes and about 50 lesser craft on 27 August when the city was bombarded. A 36-gun frigate that had been a gift from the Sultan of Morocco in 1818 was lost in March 1822.

Repeated attacks on French merchant shipping led France to establish a blockade of Algiers in 1827. *Miftah al-Jihad* and *Nafar Iskandar* were then stationed at Alexandria on convoy duty but subsequently detained there by Mehmed Ali. Both were presented to Egypt after France occupied Algiers in 1830.

On 5 July at Algiers itself the French captured *Tulûniyya*, 12 minor men-of-war and a frigate under construction.

In 1820 the Tunisian fleet included three 48-gun frigates; another 48-gun frigate was building. On 7 to 9 February 1821 three of these were wrecked in a severe storm at Hammam Lif. Three corvettes, a brig, a schooner and a xebec were wrecked with them. Reconstruction began immediately. Two frigates, two corvettes and a brig were ordered at Marseilles and three vessels purchased at La Goulette. Both frigates arrived from France in 1822. The fleet suffered disaster again at Navarin where a 42-gun frigate, a 32-gun frigate and a brig were all destroyed. This time recovery was far slower. Not until 1834 were a 44-gun frigate and two corvettes built at Marseilles, the former being launched on 3 November and named *Husayniyya*.

THE TURCO-EGYPTIAN WAR 1839–1840

The rapid expansion of the Egyptian Navy continued into 1838 with the launching of the three ships of the line which were on the stocks the previous December. Ship number 10 was launched at the beginning of the year on 23 January and named *Sham*, ship number 11 was launched on 29 March and named *Fayyum*, ship number 12 was launched on 14 December and named *Bani Suwayf*. *Sham* was burnt at Alexandria during the night of 22 May while fitting for sea.

Mehmed Ali had conquered Syria in 1832, but the Sultan remained determined to retake it and opened hostilities in June 1839. At the end of the month, however, Sultan Mahmud II died and was succeeded by his son Abdul Mecid. On 4 July a Turkish fleet consisting of nine ships of the line, 11 frigates, a

corvette and six smaller vessels left the Dardanelles, ostensibly for Syria. It met the Egyptian fleet at sea ten days later and deserted to Mehmed Ali.* On 16 July the combined fleets entered Alexandria. The Turkish ships of the line and frigates thus added to the Egyptian Navy were:

Name	Guns	Launched	Built
<i>Mahmudiye</i>	120	1828	Constantinople
<i>Mesudiye</i>	120	1798	"
<i>Fethiye</i>	90	1830	Gemlik
<i>Memduhiye</i>	90	1833	Sinop
<i>Teşrifiye</i>	90	1834	Gemlik
<i>Burc-ı Zafer</i>	74	1815	Constantinople
<i>Fevziye</i>	74	1836	Izmit
<i>Nusretiye</i>	74	1835	Constantinople
<i>Tevfikiye</i>	74	1836	Eregli
<i>Hıfz-ı Rahman</i>	60	1830	"
<i>Nizâmiye</i>	60	1837	Constantinople
<i>Şadiye</i>	60	1835	Mytilene
<i>Tarir-i Bahrî</i>	60	1833	Kidros
<i>Kaid-i Zafer</i>	50	1825	Sinop
<i>Nâvek-i Bahrî</i>	50	1837	Fatsa
<i>Nesîm-i Zafer</i>	50	1827	Sinop
<i>Suriye</i>	50	1834	Izmit
<i>Şihâb-ı Bahrî</i>	50	1838	Amasra
<i>Fazlullah</i>	44	Prize captured in 1829	
<i>Mirât-ı Zafer</i>	44	1834	Amasra

With the additional Turkish vessels, Mehmed Ali's fleet became the strongest in the Mediterranean, amounting to 20 ships of the line, 17 frigates and a steam frigate.

* A brig and a steamer had detached themselves and returned to Constantinople.

Great Britain, Austria and Russia intervened to support the Sultan. On 20 August 1840 the British frigate *Castor* captured the Egyptian frigate *Kafr al-Shaykh* off Beirut carrying stores, while the Turkish ship of the line *Mukaddime-i Hayr* and two Turkish frigates took part in British naval operations against Mehmed Ali's army along the Syrian coast.* France opposed British action but was unwilling to go to war. In late November, as part of the settlement that ended hostilities, Mehmed Ali agreed to withdraw his troops from Syria and to restore the Turkish ships to the Sultan. He nevertheless retained the governorship of Egypt which was made hereditary in his family.

* Two corvettes and 24 transports completed the Turkish contribution. The major naval action of the campaign was the bombardment of the Egyptian held fortress of St Jean d'Acre on 3 November 1840. British heavy ships engaged were *Princess Charlotte* 104 guns, *Powerful* 84 guns, *Thunderer* 84 guns, *Bellerophon* 80 guns, *Revenge* 76 guns, *Benbow* 72 guns, *Edinburgh* 72 guns, *Castor* 36 guns, *Pique* 36 guns and the steam vessels *Gorgon* 6 guns, *Stromboli* 6 guns and *Vesuvius* 6 guns. British light forces consisted of *Carysfort* 26 guns, *Talbot* 26 guns, a sloop, a brig and a small steamer. Also engaged were *Mukaddime-i Hayr* 74 guns, two Austrian frigates, *Guerriera* 44 guns and *Medea* 44 guns, and an Austrian corvette. The fortress was evacuated by the Egyptians after its main magazine was hit and exploded.

APPENDIX

TO THE OTTOMAN NAVIES

THE following description of the Ottoman fleet at Navarin is based upon that given to the allies by Jean-Marie Letellier, a French advisor to the Egyptian Navy, after the battle. Letellier had planned the disposition of the Turco-Egyptian forces.

No.	Vessel	Guns	Remarks
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*First Turkish Division, commanded by the Kapudan Bey,
sailed from Alexandria:*

1	Ship of the line (Kapudan Bey)	84	Dismasted and driven on shore.
2	"	74	} Destroyed.
3	Frigate (razee)	54	
4	"	52	
5	"	44	
6	"	52	Driven on shore, salvaged and returned to Alexandria.
7	"	52	} Dismasted and driven on shore, salvaged and returned to Alexandria but unserviceable.
8	"	52	
9	Corvette	28	} Destroyed.
10	"	26	
11	"	26	
12	"	26	} Dismasted and driven on shore, salvaged and returned to Alexandria.
13	"	26	

No.	Vessel	Guns	Remarks
14	Corvette	24	Dismasted and driven on shore, salvaged and returned to Alexandria but totally unserviceable.
15	"	24	} Destroyed.
16	"	24	
17	"	24	
18	"	22	
19	"	22	
20	"	24	

Egyptian Division, commanded by Muharram Bey, sailed from Alexandria:

21	Warrior (Muharram Bey)	60	} Destroyed.
22	Frigate	58	
23	"	58	
24	Lion*	60	Dismasted, returned to Alexandria.
25	Navarin	22	Destroyed.
26	Corvette	26	} Returned to Alexandria.
27	"	22	
28	"	22	
29	"	24	Disabled, returned to Alexandria.
30	"	22	Disabled and driven on shore, salvaged and returned to Alexandria.
31	"	24	} Destroyed.
32	"	24	
33	"	22	
34	"	22	

* *Lion* did not leave Alexandria with the division but joined it later.

No.	Vessel	Guns	Remarks
35	Corvette	22	} Destroyed.
36	Brig	22	
37	<i>Washington</i>	22	On detached service, see notes.
38	Brig	20	} Destroyed.
39	"	20	
40	"	18	
41	<i>Satalia</i>	22	} Returned to Alexandria.
42	Brig	18	
43	"	18	
44	"	18	} Disabled and driven on shore, salvaged and returned to Alex- andria.
45	"	18	
46	"	18	} Disabled, returned to Alexan- dria.
47	"	16	
48	"	14	} Destroyed.
49	"	18	
50	"	14	
51	"	22	
52	"	18	
53	"	16	
54	"	14	
55	"	14	Disabled, returned to Alexandria.
56	"	20	} Destroyed.
57	Schooner	18	
58	"	16	} See notes.
59	"	14	
60	"	14	
61	"	14	
62	Fire brig	4	} Destroyed.
63	"	4	
64	"	4	

No.	Vessel	Guns	Remarks
65	Fire brig	4	} Destroyed.
66	"	4	
67	"	4	Driven on shore, salvaged and returned to Alexandria.

Tunisian Division, sailed from Alexandria:

68	Frigate	42	} Destroyed.
69	"	32	
70	Brig	18	

Second Turkish Division, commanded by Tahir Pasha, sailed from Constantinople:

71	Ship of the line (Tahir Pasha)	60	Dismasted and driven on shore, salvaged and returned to Alexandria.
72	Frigate	50	} Destroyed.
73	"	48	
74	"	44	Dismasted and driven on shore, salvaged and returned to Alexandria.
75	"	44	} Destroyed.
76	"	44	
77	"	44	
78	Corvette	28	
79	"	26	
80	"	26	
81	"	24	
82	"	24	
83	"	24	

No.	Vessel	Guns	Remarks
84	Corvette	24	} Destroyed.
85	Brig	18	
86	"	18	
87	"	18	
88	"	18	
89	"	18	
90	"	18	

Notes: The three corvettes listed above after *Navarin* and two brigs after *Satalia* showed no signs of damage on their return to Alexandria so were evidently elsewhere on the coast at the time of the battle. *Washington* had been sent to Alexandria with despatches and was kept there by Mehmed Ali to convey future orders. The four schooners still afloat at the end of the battle did not return to Alexandria.

Tahir Pasha was commander-in-chief of the Ottoman fleet and Huseyin, the Kapudan Bey, was in command of the Turkish ships from Alexandria. Muharram Bey was senior Egyptian commander. Originally accompanying the divisions from Alexandria were 33 Ottoman and eight Austrian transports. The 84-gun flagship of the Kapudan Bey was eventually refloated and sailed for Alexandria on 16 September 1828 but foundered during the voyage.

Ibrahim Pasha, supreme Ottoman commander in the Morea and adopted son of Mehmed Ali, recorded the losses of the Turkish component of the fleet as:

Heavily damaged were the ships of the line *Kûh-ı Revân* and *Burc-ı Zafer*, the frigates *Feyz-ı Mirâc*, *Kaid-i Zafer*, *Keyvân-ı Bahrî*, *Menba-ı Nusret* and *Pertev-i Nusret*, the corvettes *Ayn-i Necad*, *Hilâl-i Zafer*, *Mebde-i Nusret*, *Mecrâ-yı Zafer*, *Muin-i Cihad*, *Nasır-ı Bahrî*, *Peyk-i Nusret* and *Tair-i Bahrî*, and two brigs.

Sunk were the frigate *Fevz-i Nusret*, the corvettes *Gurre-i Fütuh* and *Feyz-i Bahşa*, and two further brigs.

Burnt were the ship of the line *Fâtih-i Bahrî*, the frigates *Badî-i Nusret*, *Bed-i Nusret*, *Beşir-i Zafer*, *Gurre-i Nusret*, *Müjde-resân* and *Nusret Aver*, and the corvettes *Envar-i Nusret*, *Feyz-i Felek*, *Feyz-i Hüda*, *Id-i Nusret*, *Kerem-i Badî*, *Mevkib-i Cihad*, *Peyk-i Fütuh* and *Talih-i Fütuh*.

He recorded the losses of the Egyptian component as:

Sunk were the frigate *Murshid al-Jihad*, two brigs and two schooners.

Burnt were the frigates *Ihsaniyya* and *Surayya*, three corvettes, two brigs and three fireships.

Of these vessels *Burc-ı Zafer*, *Feyz-ı Mirâc*, *Kaid-i Zafer*, *Keyvân-ı Bahrî*, *Fevz-i Nusret*, *Gurre-i Fütuh*, *Feyz-i Bahşa* and two Turkish brigs returned to Alexandria in December 1827, as did *Zir al-Jihad* and other Egyptian survivors which included five corvettes. *Mecrâ-yı Zafer* returned to the Dardanelles. Huseyin Bey's flagship *Kûh-ı Revân* was refloated but lost at sea, as noted above, on its way to Alexandria in September 1828.

Not documented here are losses of armed merchant ships. A total of 106 Ottoman vessels were present on the day of the battle including 22 transports. The latter were not attacked.

THE UNITED STATES NAVY

THE United States Navy included 12 ships of the line and 18 frigates in January 1836. Five ships of the line and nine frigates were on the stocks, nearly all close to completion.

The growth of the navy had been impressive since March 1794 when Congress authorized the building of the 44-gun frigates *Chesapeake*, *Constitution*, *President* and *United States*, and 36-gun frigates *Congress* and *Constellation*. In December 1811 the United States Navy comprised 10 frigates of 44 to 32 guns. The British 38-gun frigate *Macedonian* was captured towards the end of the next year and added to the fleet, as was the small British frigate *Confiance* captured in 1814 on Lake Champlain.* In January 1816 the navy included five ships of 74 guns (of which two were on Lake Ontario) and 11 frigates of 44 to 32 guns (three were on Lake Ontario and another was on Lake Champlain). That April Congress authorized the construction of nine 74-gun ships and twelve 44-gun frigates. By January 1822 the United States Navy had expanded to 14 ships of 74 guns and 16 frigates of 44 to 32 guns (two ships of the line and four frigates were on the Great Lakes as in 1816).

No United States ship of the line or frigate had been lost since 1815. The 30-gun steam battery *Fulton*, however, blew up at Brooklyn on 4 June 1829. A vessel of 73 horse-power and 2475 tons burthen, *Fulton* was laid down on 20 June 1814 and launched just four months later on 29 October. A second steam battery was commenced in 1815 but not proceeded with.

* The British 38-gun frigates *Guerriere* and *Java* were also captured in 1812 and destroyed. The United States lost the frigates *Chesapeake* 36 guns (originally 44 guns), *Essex* 32 guns and *President* 44 guns to the British in 1813, 1814 and 1815 respectively. In addition, the 32-gun *Boston* was burnt at Washington in 1814 to avoid capture together with the 44-gun *Columbia* which was then on the stocks.

THE UNITED STATES NAVY

January 1836

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Pennsylvania</i>	74	11.22	-	3241	On the stocks.
<i>Independence</i>	74	18.8.13	20.6.14	2257	Under repair.
<i>Washington</i>	74	3.14	1.10.14	2257	
<i>Franklin</i>	74	15	25.8.15	2257	
<i>Columbus</i>	74	6.16	1.3.19	2480	Receiving ship.
<i>Ohio</i>	74	11.17	30.5.20	2757	
<i>North Carolina</i>	74	6.16	7.9.20	2633	
<i>Delaware</i>	74	8.17	21.10.20	2633	
<i>Vermont</i> ⁽¹⁾	74	9.18	-	2633	On the stocks.
<i>Alabama</i>	74	1.6.19	-	2633	" " "
<i>New York</i>	74	5.20	-	2633	" " "
<i>Virginia</i> ⁽²⁾	74	5.22	-	2633	" " "
<i>United States</i>	44	12.94	10.5.97	1607	

Notes: (1) Ex *Virginia* renamed 27.4.27. (2) Ex *Vermont* renamed 27.4.27, ex *Massachusetts* renamed in 1818.

Name	Guns	Laid Down	Launched	Tons	Remarks
<i>Constitution</i>	44	11.94	21.10.97	1607	
<i>Guerriere</i> ⁽¹⁾	44	13	20.6.14	1674	
<i>Java</i>	44	13	1.8.14	1674	Receiving ship, to be rebuilt.
<i>Potomac</i>	44	9.8.19	22.3.22	1708	
<i>Brandywine</i> ⁽²⁾	44	20.9.21	16.6.25	1708	
<i>Hudson</i> ⁽³⁾	44	Purchased	23.8.26	1723	Receiving ship.
<i>Savannah</i>	44	7.20	-	1708	On the stocks.
<i>Raritan</i>	44	9.20	-	1708	" "
<i>Santee</i>	44	8.21	-	1708	" "
<i>Sabine</i>	44	2.23	-	1708	" "
<i>Cumberland</i>	44	25	-	1708	" "
<i>Columbia</i>	44	11.25	-	1708	" "
<i>St Lawrence</i>	44	26	-	1708	" "
<i>Paul Jones</i>	..	-	-	..	To begin building.
<i>Constellation</i>	36	95	7.9.97	1278	
<i>Congress</i>	36	95	15.8.99	1278	Unserviceable, to be rebuilt.
<i>Macedonian</i>	..	28.2.33	-	1341	On the stocks.

Notes: (1) Ex *Continental* renamed in 1813. (2) Ex *Susquehanna* renamed in 1825. (3) Ex Greek *Liberator* launched 18.11.25.

A further ship of the line, the 74-gun *New Orleans*, was still on the stocks at Lake Ontario. Construction of *New Orleans* was ordered on 15 December 1814 but stopped soon afterwards at the end of the war with Great Britain.* *Hudson* was one of two frigates built at New York in 1825 for Greece during its War of Independence. The Greek government was unable to pay for both vessels and one was subsequently sold by its builders to the United States.†

American ships were pierced for more guns than their nominal rating. With all gun ports armed, the most recent United States ships of the line and frigates could mount the following:

<i>Pennsylvania</i>	140 guns, 32 42-pdrs., 36 32-pdrs., 38 24-pdrs., 34 42-pdr. carronades.
<i>Ohio</i>	102 guns, 34 42-pdrs., 34 32-pdrs., 34 42-pdr. carronades.
<i>Delaware</i> class	102 guns, 34 42-pdrs., 34 32-pdrs., 34 42-pdr. carronades.
<i>Potomac</i> class	64 guns, 32 32-pdrs., 32 42-pdr. carronades.

These batteries were far too heavy for peace-time cruising. In normal circumstances, *Ohio* and the *Delaware* class were intended to carry 90 guns: 32 42-pounders, 36 32-pounders and 22 42-pounder carronades. The new frigate *Macedonian* was designed for 32 32-pounders and 24 32-pounder carronades.‡

* Two other vessels ordered at Lake Ontario on the same day, *Chippewa* of 74 guns and *Plattsburg* of 44 guns, were left on the stocks unfinished at the end of the war. *Chippewa* was sold on 1 November 1833 and *Plattsburg* on 23 March 1825.

† *Hudson*'s sistership, the 64-gun *Hellas*, was blown up on 13 August 1831 at Poros during a rebellion. *Hellas* had been known as *Hope* prior to reaching Greece in November 1826. In 1830 Greece purchased the 64-gun ship *Emmanuel* from Russia. *Emmanuel*, however, was badly decayed and was broken up in 1833.

‡ *Macedonian* was building as a replacement for the prize broken up in 1829. The first *Macedonian* measured 1128 tons and was rated as 36 guns after capture.

Dimensions of *Ohio* appear below. *Ohio* was the largest of the American 74-gun ships and highly regarded by foreign, as well as American, naval observers.

Length between perpendiculars	198' 0"
Moulded breadth	54' 0"
Extreme breadth	55' 6"
Depth of hold	22' 5"
Draught at launch	17' 3"
Load draught	25' 0"

Burthen (carpenter's measurement)	2543 tons
Weight of hull	1970 "
Weight of ballast	200 "
Displacement at launch	2170 "
Weight of equipment and stores	1950 "
Displacement at load draught	4120 "

Ohio was designed by Henry Eckford, a noted builder, who had overseen construction of a series of vessels for the United States Navy on the Great Lakes, including *Chippewa* and *New Orleans*. As a private contractor in New York, he completed the frigates *Amazon* for Brazil and *South America* for Colombia amongst other craft. He died in 1832 at Constantinople, where a 74-gun ship that he had just laid down was launched three years later by his foreman Foster Rhodes as *Nusretiye*.

THE DUTCH NAVY

IN July 1836 the Dutch Navy comprised nine ships of the line and 25 frigates, mainly of post-war construction. In 1814 the Netherlands acquired 24 ships of the line and 14 frigates from the French Texel and Scheldt fleets. Most were in poor condition and, as a consequence, broken up over the next decade.

THE DUTCH NAVY

July 1836

Name	Guns	Laid Down	Launched
<i>Zeeuw</i>	84	1819	1825
<i>Neptunus</i>	84	1821	1835
<i>Waterloo</i>	74	1818	1824
<i>Kortenaar</i>	74	1819	1825
<i>Jupiter</i>	74	1825	1833
<i>Tromp</i>	74	1830	-
<i>De Ruyter</i>	74	1831	-
<i>Piet Hein</i>	74	1833	-
<i>Zeeland</i> ⁽¹⁾	64	1797	1798
<i>Waal</i>	60	1828	-
<i>Doggersbank</i>	60	1831	-
<i>Rhijn</i> ⁽²⁾	54	1813	1816
<i>Amstel</i> ⁽³⁾	44	1812	1814

Notes: (1) Ex *Doggersbank* renamed 30.7.14 after reacquisition from the French 4.5.14. (2) Ex French *Vestale* acquired on the stocks 2.12.13. Built as a 44-gun frigate, lengthened in 1832. (3) Ex French *Amstel* acquired on the stocks 2.12.13.

Name	Guns	Laid Down	Launched
<i>Diana</i> ⁽¹⁾	44	Purchased	7.3.15
<i>Schelde</i> ⁽²⁾	44	1813	1817
<i>Sambre</i> ⁽³⁾	44	1818	1821
<i>Maas</i>	44	1818	1822
<i>Rupel</i>	44	1818	1822
<i>Bellona</i>	44	1819	1823
<i>Algiers</i> ⁽⁴⁾	44	1821	1825
<i>Rotterdam</i>	44	1821	1826
<i>Palembang</i>	44	1822	1829
<i>Jason</i>	44	1824	1829
<i>Ceres</i>	44	1824	1830
<i>Zaan</i>	44	1825	1831
<i>Yssel</i>	44	1830	-
<i>Lek</i>	44	1832	-
<i>Holland</i>	44	1833	-
<i>Euridice</i>	32	1801	1802
<i>Kenau Hasselaar</i> ⁽⁵⁾	32	1804	1805
<i>Maria Reygersbergen</i>	32	1807	1808
<i>Amphitrite</i>	32	1827	1830
<i>Juno</i>	32	1833	-
<i>Argo</i>	32	1833	-

Notes: (1) Ex British *Diana* laid down in 3.93 and launched 3.3.94. *Melampus*, another British frigate purchased 7.3.15, was hulked in 1823. (2) Ex French *Fidèle* acquired on the stocks 2.12.13. (3) Ex *Algiers* renamed in 1828. (4) Ex *Sambre* renamed in 1828. (5) Ex *Diana* renamed in 1807.

The Dutch Navy included 50 ships of 74 to 56 guns and 38 frigates of 40 to 24 guns in 1790. It suffered heavy losses in the Revolutionary and Napoleonic Wars. In 1810 Holland was annexed to France and did not regain independence until late in 1813. The Netherlands was awarded a substantial fleet at

the peace settlement, but many of its ships were built from unseasoned timber. Dutch naval strength during this period was:

Class	1800		1810		1815	
	No.	Guns	No.	Guns	No.	Guns
Ships of the line	16	90–68	14	90–68	24	90–68
Frigates	6	44–24	10	50–32	14	44–32

In January 1829 the navy included eight ships of the line and 22 frigates: *Zeeuw* 84, *Neptunus* 84 (on the stocks), *Prins Willem I* 74 (condemned), *Holland* 74, *Waterloo* 74, *Kortenaar* 74, *Jupiter* 74 (on the stocks), *Zeeland* 64, *Waal* 60 (on the stocks), *Amstel* 44, *Diana* 44, *Rhijn* 44, *Schelde* 44, *Sumatra* 44, *Sambre* 44, *Rupel* 44, *Maas* 44, *Bellona* 44, *Algiers* 44, *Rotterdam* 44, *Palembang* 44 (on the stocks), *Jason* 44 (on the stocks), *Zaan* 44 (on the stocks), *Ceres* 44 (on the stocks), *Euridice* 32, *Minerva* 32, *Kenau Hasselaar* 32, *Maria Reygersbergen* 32, *Javaan* 32 and *Amphitrite* 32 (on the stocks).

Dutch ships of the line and frigates begun after 1815 consisted of three principal classes: 84-gun ships, 74-gun ships and 44-gun frigates. The armament of each is shown below:

84-gun ship:	94 guns, 32 36-pdrs., 34 30-pdrs., 2 12-pdrs., 26 30-pdr. carronades.
74-gun ship:	88 guns, 62 30-pdrs., 2 12-pdrs., 24 30-pdr. carronades.
44-gun frigate:	52 guns, 50 30-pdrs., 2 8-pdrs.

The new Dutch 84-gun ships were therefore comparable to foreign 90-gun ships, the new 74-gun ships to foreign 84-gun ships and the new 44-gun frigates to foreign 50-gun frigates.

Of the ships of the line and frigates built since the war one

had been lost and one disposed of. The 44-gun *Sumatra* (formerly *Java*, renamed in 1828) was laid down in 1816, launched in 1820, and sank at Antwerp on 10 September 1830. *Javaan* of 32 guns was launched in 1824 and hulked in 1833.

THE SWEDISH NAVY

THE Swedish Navy included 12 ships of the line and seven frigates in 1836, of which four vessels were then on the stocks:

<i>Carl XIII</i>	84 guns, launched 19.7.19.
<i>Carl Johan</i>	84 guns, launched 8.11.24.
<i>Försigtigheten</i>	84 guns, launched 16.9.99.
<i>Stockholm</i>	84 guns, on the stocks.
<i>Äran</i>	74 guns, launched 28.8.84.
<i>Dristigheten</i>	74 guns, launched 9.7.85.
<i>Fäderneslandet</i>	74 guns, launched 31.3.83.
<i>Gustaf den Store</i>	74 guns, launched 18.9.32.
<i>Manligheten</i>	74 guns, launched 31.8.85.
<i>Prins Oscar</i>	74 guns, launched 8.11.30.
<i>Skandinavien</i>	74 guns, on the stocks.
<i>Wasa</i>	60 guns, launched in 1778.
<i>Desiree</i>	60 guns, on the stocks.
<i>Camilla</i>	48 guns, launched 23.10.84.
<i>Euridice</i>	48 guns, launched 31.8.85.
<i>Galathea</i>	48 guns, launched 9.7.85.
<i>Freya</i>	40 guns, on the stocks.
<i>Josephine</i>	40 guns, launched 21.8.34.
<i>Af Chapman</i>	36 guns, launched 8.11.30.

Carl XIII had been laid down in 1805 as *Fredrika Dorothea Wilhelmina* and renamed in 1817 while building. *Försigtigheten* had been launched as *Gustaf IV*, renamed *Gustaf den Store* in 1811, rebuilt from 1819 to 1824 and renamed again in 1825. *Wasa* had been sold to the Swedish East India Company in 1803, repurchased in 1808 and rebuilt in 1809. Other

older vessels were rebuilt also, *Galathea* in 1813, *Manligheten* in 1822, *Äran* in 1823, *Camilla* in 1824, *Dristigheten* in 1826, *Euridice* in 1827 and *Fäderneslandet* in 1830. They originally mounted lighter batteries than those fitted later. *Gustaf IV* had initially been armed with 74 guns, the 74-gun ships with 60 guns and the 48-gun frigates with 40 guns.

The Swedish Navy declined sharply after 1790.* Before its losses against the Russian fleet that year, it had comprised 25 ships of 74 to 56 guns and 15 frigates of 44 to 24 guns. It included 13 ships of the line and 11 frigates in 1808 when war with Russia again broke out, but only nine serviceable ships of the line and six frigates remained in 1824. By 1832 the Swedish Navy had expanded to 11 ships of the line and seven frigates; the Norwegian division of the fleet included an additional frigate, the 44-gun *Freya*, launched on 25 August 1828.

* New construction for the Swedish High Seas Fleet almost ceased until 1819. The only heavy ships to be built were *Gustaf IV* and the 40-gun frigate *af Chapman*. The latter was launched in 1803 and sold to Colombia in 1825 along with the old ship of the line *Tapperheten* which had been launched on 21 October 1785.

THE DANISH NAVY

BETWEEN 1808 and 1835 six ships of the line and 10 frigates were built for the Danish Navy. Their dimensions, in Danish measure, appear opposite. *Najaden* was sunk by the British on 6 July 1812 off Lyngoer and *Perlen* wrecked on 5 December 1814 off Skagen, leaving six ships of 84 to 58 guns and eight frigates of 46 to 40 guns in January 1835. On the stocks was an enlarged 84-gun ship which had been laid down on 15 May 1834. A new 48-gun frigate was begun in November 1835, although the earlier *Venus* was broken up that year and *Minerva* the next. The dimensions of the two latest vessels were:

Class	Length	Breadth	Class	Length	Breadth
84-gun	181' 6"	46' 9"	48-gun	155' 3"	38' 6"

In 1790 the Danish Navy included 30 ships of 90 to 50 guns and 18 frigates of 42 to 20 guns. In 1807, prior to the British raid on Copenhagen, it included 20 ships of 90 to 60 guns and 15 frigates of 46 to 20 guns; three 74-gun ships and a 36-gun frigate were building. Except for two ships of the line in Norway and a frigate in the Mediterranean, the entire fleet was captured or destroyed. In 1808 the British burnt a further ship of the line and in 1809 the Spanish captured the frigate. Starting to recover by 1825, the navy consisted of *Dronning Maria* 84 guns, *Danmark* 74 guns, *Phœnix* 60 guns, *Freia* 46 guns, *Havfruen* 46 guns, *Rota* 46 guns, *Fylla* 36 guns, *Minerva* 36 guns, *Nymphen* 36 guns and *Venus* 36 guns. The old 64-gun ship *Prindsesse Lovisa Augusta* had been reduced to a hulk.*

* *Lovisa Augusta* was launched on 11 August 1783 and sold in 1829.

DANISH NAVAL CONSTRUCTION 1808–1835

Name	Guns	Laid Down	Launched	Length	Breadth	Draught
<i>Dronning Maria</i>	84	22.10.21	16.9.24	180' 10"	46' 0"	20' 0"
<i>Waldemar</i>	84	4.5.25	14.8.28	180' 10"	46' 0"	20' 0"
<i>Frederik VI</i>	84	11.8.26	25.8.31	180' 10"	46' 0"	20' 0"
<i>Skiold</i>	84	6.10.28	12.9.33	180' 10"	46' 0"	20' 0"
<i>Danmark</i>	66	31.7.12	29.7.17	170' 9"	44' 3"	19' 7½"
<i>Phœnix</i>	58	27.8.08	5.12.10	162' 1"	43' 4"	18' 10"
<i>Freia</i>	46	1.17	26.8.19	153' 3"	37' 9"	16' 7"
<i>Rota</i>	46	15.11.19	31.7.22	153' 3"	37' 9"	16' 7"
<i>Havfruen</i>	46	26.11.22	6.10.25	153' 3"	37' 9"	16' 7"
<i>Bellona</i>	46	30.5.26	15.9.30	153' 3"	37' 9"	16' 7"
<i>Najaden</i>	40	29.11.08	26.10.11	143' 6"	36' 6"	15' 4"
<i>Perlen</i>	40	7.11.10	30.5.12	143' 6"	36' 6"	15' 4"
<i>Venus</i>	40	9.2.11	26.9.12	143' 6"	36' 6"	15' 4"
<i>Minerva</i>	40	7.6.12	13.10.13	143' 6"	36' 6"	15' 4"
<i>Nymphen</i>	40	2.11.12	18.10.15	143' 6"	36' 6"	15' 4"
<i>Fylla</i>	40	18.11.12	17.7.16	143' 6"	36' 6"	15' 4"

THE SPANISH NAVY

IN 1836 the Spanish Navy included afloat three ships of the line and five frigates; an additional frigate was then building:

<i>Héro⁽¹⁾</i>	80 guns, captured 14.6.08.
<i>Guerrero</i>	74 guns, launched 27.3.55.
<i>Soberano⁽²⁾</i>	74 guns, launched 15.3.71.
<i>Maria Cristina</i>	52 guns, on the stocks.
<i>Restauración</i>	50 guns, launched 14.10.26.
<i>Esperanza</i>	48 guns, launched 29.11.34.
<i>Perla</i>	40 guns, launched 31.7.89.
<i>Cortes</i>	40 guns, launched 27.7.36.
<i>Isabel II</i>	40 guns, launched 23.9.36.

Notes: (1) Ex French *Héros* launched 12.5.01. (2) Ex *San Pablo* renamed in 1814.

In 1790 the navy included 76 ships of 112 to 54 guns and 51 frigates of 40 to 26 guns. This powerful force was steadily diminished by the combined effects of war and neglect:

Class	1795	1800	1805	1808	1811
Ships of the line	78	67	54	42	26
Frigates	51	44	37	30	21
Class	1814	1817	1820	1825	1830
Ships of the line	25	20	17	6	4
Frigates	17	16	15	7	6

The purchase of ships from Russia in 1817 failed to arrest

the decline as they proved mostly unserviceable. Five ships of the line and six frigates were purchased: *Alejandro I* 74 guns (formerly *Dresden*), *España* 74 guns (formerly *Nord-Adler*), *Fernando VII* 74 guns (formerly *Neptunus*), *Numancia* 74 guns (formerly *Lyubek*), *Velasco* 74 guns (formerly *Trekh Svyatiteley*), *Astrolabio* 50 guns (formerly *Avtroil*), *Maria Isabel* 50 guns (formerly *Patrikiy*), *Mercurio* 50 guns (formerly *Mercuriy*), *Ligera* 40 guns (formerly *Legkiy*), *Pronta* 40 guns (formerly *Pospeshnyy*) and *Viva* 40 guns (formerly *Provornyy*). *Maria Isabel* was captured by a Chilean squadron on 28 October 1818 in the Pacific off Talcahuano and *Ligera* sank at Santiago de Cuba in December 1822. The others were disposed of between 1820 and 1823. Purchased in France was the 40-gun frigate *Aretusa* launched on 29 April 1819 and broken up in 1829.*

The reconstruction of the Spanish Navy did not begin until the 50-gun frigates *Iberia* and *Lealtad* were launched in 1825 on 5 March and 19 March respectively; *Restauración*, also of 50 guns, followed on 14 October 1826. Existing vessels continued to be disposed of, however, and *Iberia* was broken up in December 1830 after just five years in service. The navy reached its nadir in 1833 with three ships of the line and three frigates afloat: *Héroe* 80 guns, *Guerrero* 74 guns, *Soberano* 74 guns, *Lealtad* 50 guns, *Restauración* 50 guns and *Perla* 40 guns. Another 50-gun frigate was on the stocks, but *Lealtad* was wrecked on 13 January 1834 off Santander.

* Ships of the line in commission in 1819 were *Guerrero*, *Numancia*, *Asia* and (lost on 2 September off Cape Horn) *San Telmo*. Disarmed were *San Carlos*, *San Pablo*, *Héroe*, *España*, *Velasco*, *Montañés*, *San Julián*, *Fernando VII*, *Alejandro*, *San Justo*, *Algerciras*, *Neptuno* and *América*. Frigates in commission were *Perla*, *Prueba*, *Diana*, *Esmeralda*, *Venganza*, *Mercurio*, *Sabina*, *Ligera*, *Pronta* and *Viva*. Disarmed frigates were *Astrolabio*, *Santa Casilda*, *Soledad* and *Proserpina*.

THE PORTUGUESE NAVY

THE Portuguese Navy included two ships of the line and four frigates afloat in 1835; another ship of the line was building:

<i>Dom João VI</i>	74 guns.	<i>Dom Pedro</i>	50 guns.
<i>São Vicente</i>	74 guns.	<i>Rainha de</i>	
<i>Duquesa de</i>		<i>Portugal</i>	46 guns.
<i>Braganza</i>	50 guns.	<i>Dona Maria II</i>	42 guns.

The new ship of the line was begun at Lisbon on 24 June 1824 where *Dom João* had been launched on 24 August 1816, *São Vicente* on 28 September 1791 and *Duquesa de Braganza* on 13 May 1819. *Dom João* was formerly *Principe Regente* and was renamed in 1816. Laid down as *Nossa Senhora dos Martires*, it was captured on the stocks by the French during their occupation of Lisbon from November 1807 to September 1808. *São Vicente* was formerly *Rainha de Portugal*. It was renamed in 1833 and then hulked. *Duquesa de Braganza* was formerly *Princesa Real* and was renamed in 1833 also. It had been launched as *Constituição* and first renamed in 1822.

The Portuguese Navy comprised 15 ships of the line and 16 frigates in 1793. Although it still included 13 ships of the line and 17 frigates in 1820, Brazil declared its independence from Portugal during 1822 and seized six Portuguese ships of the line and three frigates at Rio de Janeiro. Two further Portuguese frigates were taken by the Brazilians soon afterwards, one newly launched in 1823 at Para and the other in 1824 at Montevideo. By 1825 there remained only three ships of the line and six frigates in service: *Dom João VI* 74 guns, *Rainha de Portugal* 74 guns, *São Sebastião* 64 guns, *Diana* 54 guns,

Princesa Real 50 guns, *Amazonas* 46 guns, *Perola* 46 guns, *Principe Dom Pedro* 40 guns and *Venus* 36 guns.

The struggle between liberals and conservatives in Portugal, coupled with a dynastic crisis following the death of John VI in 1826, led to civil war. The crown devolved on Dom Pedro, Emperor of Brazil and eldest son of John VI, but he relinquished it in favour of his infant daughter Maria da Gloria; he nominated his brother Dom Miguel as regent. In 1828 Dom Miguel overthrew Maria's government and had himself proclaimed absolute king. Dom Pedro abdicated the Brazilian throne in 1831 to fight for the restoration of Maria.

With liberal support, he gathered an army and a fleet in the Azores.* The former Colombian frigate *Congreso* and former British frigate *Sir Francis Drake* were purchased in 1831 and renamed *Rainha de Portugal* and *Dona Maria II* respectively.† In 1832 the British East Indiaman *Wellington* was also purchased and renamed *Dom Pedro*. In July of that year Dom Pedro's army landed at Oporto where it was besieged by Dom Miguel. A victory by the Pedroite squadron off Cape St. Vincent on 5 July 1833 made possible a second landing by Dom Pedro's troops to the south of Lisbon. The Pedroite squadron comprised *Dom Pedro* 50 guns, *Rainha de Portugal* 46 guns, *Dona Maria II* 42 guns, a corvette and a brig. The Miguelite

* Dom Miguel's treatment of French liberal sympathizers in Portugal led to a clash with the French government. On 11 July 1831 a French fleet entered the Tagus and passed the forts protecting Lisbon. This fleet included the ships of the line *Suffren* 90 guns, *Algésiras* 86 guns, *Alger* 82 guns, *Marengo* 82 guns, *Trident* 82 guns and *Ville de Marseille* 82 guns, the frigates *Pallas* 58 guns, *Didon* 60 guns and *Melpomène* 60 guns, two corvettes and three brigs. Drawn up below the city was a Portuguese force consisting of the ship of the line *Dom João VI*, the frigates *Diana*, *Amazonas* and *Perola*, three corvettes, a brig and a schooner. It was quickly overwhelmed. The Portuguese vessels were taken to Brest except for *Dom João VI* which was unseaworthy. Dom Miguel agreed to the French terms of settlement.

† *Rainha de Portugal* had originally been launched for the Swedish Navy in 1803 as the frigate *af Chapman* and *Dona Maria II* had been launched in 1797 as the East Indiaman *Asia*. *Dom Pedro* had been launched in 1812 as *Marquis of Wellington*.

fleet consisted of *Dom João VI* 80 guns, *Rainha de Portugal* 76 guns, *Princesa Real* 56 guns, *Martim de Freitas* 48 guns, three corvettes and two brigs. The entire fleet was captured except two corvettes and the brigs. *Rainha de Portugal* was renamed *São Vicente*, *Princesa Real* was renamed *Duquesa de Braganza* and *Martim de Freitas* was renamed *Cinco de Julho*. *Dom João* retained its name after capture. *Cinco de Julho* had formerly been the storeship *Dous Oferentes* acquired in 1822 and renamed *Maia e Cardoso*. Refitted as a frigate in 1833, it reverted to its former function two years later.

Dom Pedro's second landing proved decisive. Lisbon fell on 24 July and Dona Maria was restored as queen. The war came to an end in 1834 when Dom Miguel went into exile.*

* The three frigates seized by the French in 1831 remained in their possession: *Diana* which had been launched at Bahia in 1822 as *Constituição* and renamed in 1823, *Amazonas* which had been launched at Para in 1798, and *Perola* which had been launched also at Para in 1797. The last two were in poor condition.

APPENDIX

TO THE PORTUGUESE NAVY

VESSELS of the Portuguese Navy in 1820 were stationed in Portuguese territories throughout Europe, America and Asia. In Portugal were the ships of the line *São Sebastião*, *Maria I*, *Dom João VI*, *Vasco da Gama*, *Princesa de Beira* and *Belém*, and the frigates *Phenix*, *Carlota*, *Amazonas*, *Perola*, *Venus*, *Tritão* and *Constituição*. In Brazil were the ships of the line *Principe Real*, *Dom João de Castro*, *Afonso de Albuquerque*, *Martim de Freitas*, *Rainha de Portugal*, *Medusa* and *Principe do Brasil*, and the frigates *União*, *Dom Pedro*, *Três Reinos Unidos*, *Real Carolina*, *Real Leopoldina* and *Sucesso*. In the River Plate was the frigate *Thetis* and in India the frigates *São Francisco*, *Temivel* and *Salamandra*.

The consolidation of Brazilian independence after 1822 was resisted both by Portugal and by loyalists in Brazil. On 4 May 1823 a Portuguese and a Brazilian squadron clashed at sea off the coast of Bahia. The Portuguese ships engaged were *Dom João VI* 88 guns, *Constituição* 50 guns, *Perola* 44 guns, two corvettes, a brig and five armed merchantmen. The Brazilian squadron, commanded by the able Thomas Lord Cochrane, was made up of *Pedro I* 74 guns (formerly *Martim de Freitas*), *Piranga* 52 guns (formerly *União*), *Nictheroy* 42 guns (formerly *Sucesso*), two corvettes and two brigs. Despite the inconclusive result of the action, Cochrane blockaded the Portuguese in their principal base at Bahia and harassed them until they returned to Europe. The Brazilian Navy then cleared Portuguese forces from the rest of the new nation's coastline.

THE NAVY OF THE TWO SICILIES

IN January 1836 the Navy of the Two Sicilies comprised two ships of the line and six frigates; all had been constructed at Naples or Castellamare. No new vessels were on the stocks:

<i>Vesuvio</i>	84 guns, launched 2.12.24.
<i>Capri</i>	74 guns, launched 21.8.10.
<i>Partenope</i>	60 guns, launched 17.11.34.
<i>Sirena</i>	48 guns, launched 3.7.89.
<i>Regina Isabella</i>	48 guns, launched 9.7.27.
<i>Urania</i>	48 guns, launched 15.1.34.
<i>Amalia</i>	44 guns, launched 16.6.11.
<i>Cristina</i>	32 guns, launched 15.10.28.

In 1797 the Navy of the Two Sicilies included five ships of 74 guns, one ship of 60 guns and six frigates of 40 guns. Two 74-gun ships, the 60-gun ship and a 40-gun frigate were burnt on 8 January 1799, together with a corvette and a storeship, to avoid capture during the French occupation of Naples. Another 74-gun ship was scuttled at Castellamare. No further vessels were built in these years and by 1806, when the French expelled the Bourbons from Naples for a second time, the navy had declined to a single 74-gun ship and four 40-gun frigates. The ship of the line and three of the frigates withdrew to Sicily with the royal family. The remaining frigate was incorporated into the new Neapolitan Navy.

At the end of the Napoleonic War the Bourbon Navy comprised *Minerva* 40 guns, *Sibilla* 40 guns and *Sirena* 40 guns. The Neapolitan Navy had by then expanded to three ships of the line—one was building—and three frigates. Afloat were

Capri 74 guns, *Gioacchino* 74 guns, *Carolina* 44 guns, *Letizia* 44 guns and *Cerere* 40 guns. When the Congress of Vienna reconstituted the Kingdom of the Two Sicilies in 1815, these fleets were united except for the 74-gun ships which had been seized by the British on 28 April. On 30 May 1815 *Carolina* was renamed *Amalia* and *Letizia* renamed *Cristina*. *Capri* and *Gioacchino* were restored in September 1816, the latter being renamed *San Ferdinando*. The ship on the stocks was subsequently named *Vesuvio*. On 10 May 1820 *San Ferdinando* was accidentally burnt at Naples. On 31 October 1831 the newly built royal yacht *Francesco I* was renamed *Cristina* and reclassified as a man-of-war.*

In January 1833 the navy included two ships of the line and four frigates: *Vesuvio* 84 guns, *Capri* 74 guns, *Sirena* 48 guns, *Regina Isabella* 48 guns, *Amalia* 44 guns and *Cristina* 26 guns.

* *San Ferdinando* had been launched, as *Gioacchino*, on 1 August 1812 and the first *Cristina* launched, as *Letizia*, later in the same year on 25 December 1812.

THE SARDINIAN NAVY

IN 1838 the Sardinian Navy included five modern frigates afloat:

<i>Carlo Felice</i>	60 guns, launched 24.6.29.
<i>Regina</i>	60 guns, launched 23.10.29.
<i>Beroldo</i>	50 guns, launched 5.11.27.
<i>Des Geneys</i>	50 guns, launched 12.12.27.
<i>Euridice</i>	44 guns, launched 5.11.28.

In 1830 the navy had comprised the frigates *Carlo Felice* 60 guns, *Commercio di Genova* 60 guns, *Maria Teresa* 60 guns, *Regina* 60 guns, *Beroldo* 50 guns, *Haute Combe* 50 guns, *Euridice* 44 guns and *Maria Cristina* 44 guns. *Haute Combe* was renamed *des Geneys* on 25 July 1831. After its expansion in the late eighteen-twenties, the fleet was neglected and its older vessels not replaced when they became unserviceable. Of these *Commercio di Genova* had been launched on 3 June 1817, *Maria Teresa* on 22 November 1816 and *Maria Cristina* on 3 June 1819. All were sold in 1836 and broken up.

THE AUSTRIAN NAVY

IN 1835 the Austrian Navy included five frigates; all were formerly French or Franco-Italian and acquired by Austria in 1814:

<i>Italiano</i>	56 guns, launched 15.8.12.
<i>Ebe</i>	44 guns, launched 14.7.21.
<i>Guerriera</i>	44 guns, launched 12.9.29.
<i>Medea</i>	44 guns, launched 7.8.27.
<i>Venere</i>	44 guns, launched 12.6.32.

The Austrian Navy was the lineal descendant of the Venetian Navy. In 1787 the Venetian Navy included five first-rate ships, four second-rate ships and (equivalent to frigates) five third-rate ships afloat.* In May 1797, when the Republic fell to a French army, it comprised four ships of 70 guns, four ships of 66 guns, one ship of 56 guns and six frigates of 42 to 24 guns. On the stocks were a further four ships of 70 guns, 10 ships of 66 guns and seven frigates of 44 to 32 guns.†

Austria occupied Lombardy and Venetia at the end of the Napoleonic War in 1814, taking possession of the French and Franco-Italian fleets at Venice on 25 April. These totalled 19 ships of the line and frigates. Six ships of the line were on the stocks and all were broken up between 1818 and 1830: *Emo* 80 (formerly *Saturno*), *Cesare* 74 (formerly *Duquesne*), *Hanau*

* All were in commission to campaign against Tunis: first-rates *Diligenza*, *Eolo*, *Galatea*, *San Giorgio* and *Vittoria*, second-rates *Fama*, *Concordia*, *Minerva* and *Sirena*, and third-rates *Palma*, *Brillante*, *Cavalier Angelo*, *Pallade* and *Venere*. Similarly in commission were the xebecs *Cupido*, *Mercurio*, *Nettuno* and *Tritone*, galliot *Esploratore*, bomb vessels *Distruzione* and *Polonia*, and a Tunisian prize.

† The better Venetian ships were taken into the French Navy and the rest destroyed or damaged. Austria administered Venice from 1798 to 1806 when the city was absorbed by the Napoleonic Kingdom of Italy and an Italian Navy established.

74 (formerly *Semmering*), *Kulm* 74 (formerly *Montenotte*), *Lombardo* 74 and *Tonante* 74 (formerly *Arcole*).^{*} Two of the four ships of the line afloat, *Castiglione* 74 and *Monte San Bernardo* 74, were destroyed by fire at Venice on 14 September 1814.[†] The remaining ships of the line were *Italiano* 74 (formerly *Reale Italiano*) and *Severo* 74 (formerly *Rigeneratore*).[‡] Both were later rebuilt as 56-gun vessels, *Italiano* from 1825 to 1829 and *Severo* from 1823 to 1824. *Severo* was renamed *Bellona* while rebuilding and broken up in 1831.

Three of the nine frigates acquired by Austria were afloat: *Austria* 44 (formerly *Piave*), *Lipsia* 44 (formerly *Principessa di Bologna*) and *Carolina* 32.[§] *Austria* and *Lipsia* were each broken up in 1826, *Carolina* in 1832. One of the six frigates on the stocks, *Augusta* 44 (formerly *Anfitrite*), was launched almost immediately, but was broken up after just ten years in service. A second, *Corona* 44, was broken up following acquisition. The others, *Ebe*, *Guerriera*, *Medea* (formerly *Moscova*) and *Venere*, were completed after protracted delays.||

^{*} *Saturno* (or *Saturne*) had been laid down in May 1812, *Duquesne*, *Montenotte* and *Arcole* in December 1810, and *Semmering* and *Lombardo* on 27 July 1811. *Duquesne* was launched as *Cesare* on 7 November 1815. All names of Napoleonic origin were replaced on 11 June 1814. *Saturno* was renamed in December 1815.

[†] *Castiglione* and *Monte San Bernardo* (or *Mont Saint Bernard*) were laid down on 4 January 1807 and launched on 2 August 1812 and 9 June 1811 respectively.

[‡] *Reale Italiano* and *Rigeneratore* were laid down on 26 December 1806. *Reale Italiano* was launched on 15 August 1812 and *Rigeneratore* on 7 July 1811.

[§] *Piave* was laid down in January 1811 and launched on 15 August 1812, *Principessa di Bologna* laid down in December 1810 and launched on 3 September 1811, and *Carolina* laid down on 22 April 1807 and launched on 2 December 1807.

|| *Anfitrite* (or *Amphitrite*) was laid down in August 1811 and launched on 7 November 1815. *Corona* had been laid down in 1812, *Ebe* (or *Héb *) and *Guerriera* successively in August and September 1811, *Moscova* in May 1813 and *Venere* (or *V nus*) on 20 July 1813. The Austrians also took possession of the old Venetian ship of the line *Diamante* (or *Diamant*) laid down on 1 March 1791 at Venice as No. 3. Captured by the French on the stocks and eventually completed in 1807 as a floating battery, *Diamante* retained its name at recapture until broken up in 1825.

THE BRAZILIAN NAVY

THE Brazilian Navy in May 1835 comprised one ship of the line and eight frigates afloat; another frigate was on the stocks:

<i>Pedro II</i> ⁽¹⁾	80 guns, launched 25.3.30.
<i>Constituição</i> ⁽²⁾	62 guns, launched in 5.26.
<i>Príncipe Imperial</i> ⁽³⁾	46 guns, launched in 5.26.
<i>Imperatriz</i> ⁽⁴⁾	46 guns, captured 15.8.23.
<i>Bahiana</i>	46 guns, launched in 1830.
<i>Paraguassú</i> ⁽⁵⁾	44 guns, launched 15.3.19.
<i>Campista</i> ⁽⁶⁾	40 guns, launched 13.8.26.
<i>Nictheroy</i> ⁽⁷⁾	.. launched in 1818.
<i>Paulista</i>	.. launched in 1833.
<i>Dous de Dezembro</i>	.. building at Para.

Notes: (1) Ex *Imperador do Brasil* renamed 17.10.32, ex *Príncipe do Brasil* renamed 18.9.26. (2) Ex *Isabel* renamed 13.5.31, ex *Amazonas* renamed 23.10.26. (3) Ex *Baltimore* renamed 22.1.27. (4) Ex Portuguese *Real Leopoldina*, briefly renamed *Imperatriz Leopoldina* after capture. (5) Ex *Real Carolina* renamed 17.5.24. (6) Ex *Dona Francisca* renamed 29.5.31. (7) Ex *Sucesso* renamed 25.1.23.

Five of these vessels had been built in Brazil. *Pedro II* and *Bahiana* were built at Bahia, *Imperatriz* at Para, *Campista* at Rio de Janeiro and *Paulista* at Santos. *Constituição* was built at New York and *Príncipe Imperial* at Baltimore; the former Portuguese frigates *Paraguassú* and *Nictheroy* were built at Daman in Portuguese India and at Lisbon respectively. The construction of *Pedro II* had been ordered on 4 June 1824, of *Imperatriz* on 14 May 1818, of *Campista* on 31 May 1824, of *Constituição* and *Príncipe Imperial* on 3 January 1825, and of *Paraguassú* on 29 November 1816. The construction of *Dous*

de Dezembro at Para had been ordered on 11 June 1824.

The armaments to be mounted by the most recent of the Brazilian vessels were as designated below:

Name	32-pound guns	24-pound guns	18-pound guns	12-pound guns	42-pdr. carronades	32-pdr. carronades	24-pdr. carronades	18-pdr. carronades
<i>Pedro II</i>	28	28	2		22			
<i>Constituição</i>	30	2			30			
<i>Imperatriz</i>			26	12		8		
<i>Bahiana</i>			30					16
<i>Paraguassú</i>				30			14	
<i>Campista</i>				30				10

Príncipe Imperial was designed for a battery similar to *Constituição* but was temporarily reduced to 14 carronades. *Pauлиста* was designed for a battery similar to *Campista*.

When Brazil declared its independence in 1822, it acquired six Portuguese ships of the line and three frigates at Rio de Janeiro. The ships of the line were old: *Príncipe Real* 84 guns, *Martim de Freitas* 74 guns, *Medusa* 74 guns, *Vasco da Gama* 74 guns, *Affonso de Albuquerque* 64 guns and *Dom João de Castro* 64 guns. Only *Príncipe Real* and *Martim de Freitas* were taken into Brazilian service. The former, used as a floating battery, had originally been launched on 13 July 1771 at Lisbon as *Nossa Senhora da Conceição* and rebuilt there and renamed in 1794. The latter had been launched on 29 January 1763 at Bahia as *Santo Antonio e São José* and rebuilt at Lis-

bon and renamed *Infante Dom Pedro* in 1794 also. Renamed again in 1806, *Martim de Freitas* served in the Brazilian Navy as *Pedro I* following a final change of name on 14 January 1823. Converted into a prison ship was a third vessel, *Vasco da Gama*, which had been launched on 15 December 1792 at Lisbon. The frigates were *União* 46 guns, launched in 1817 at Bahia, *Sucesso* 44 guns, a former merchant ship purchased in 1818, and *Real Carolina* 40 guns, launched on 15 March 1819 at Daman. They were renamed *Piranga*, *Nictheroy* and *Paraguassú* successively in 1822, 1823 and 1824. A fourth Portuguese frigate, the 46-gun *Real Leopoldina*, was captured at Para soon after launching in 1823 and renamed *Imperatriz*. A fifth, the 44-gun *Thetis*, was acquired on 8 March 1824 when the last Portuguese forces in Brazil evacuated Montevideo. *Thetis* had been launched in 1793 at Bahia.

The fleet had played a decisive role in expelling Portuguese garrisons from the coast. By 1825 it comprised the ship of the line *Pedro I* 74 guns and the frigates *Piranga* 50 guns, *Imperatriz* 50 guns, *Dona Paula* 50 guns, *Paraguassú* 44 guns, *Thetis* 36 guns and *Nictheroy* 36 guns. *Dona Paula* was built in London as the East Indiaman *Surat Castle* in 1824, acquired in 1825, and wrecked off Cape Frio on 2 October 1827. In 1831 the Brazilian Navy included two ships of the line and nine frigates: *Imperador do Brasil* 80 guns, *Pedro I* 74 guns, *Constituição* 62 guns, *Príncipe Imperial* 62 guns, *Piranga* 50 guns, *Imperatriz* 50 guns, *Bahiana* 50 guns, *Paraguassú* 44 guns, *Thetis* 36 guns, *Nictheroy* 36 guns and *Campista* 36 guns.

SPANISH-AMERICAN NAVIES

THE ARGENTINE NAVY

CIRCUMNAVIGATING the world from 1817 to 1819, the 34-gun privateer *La Argentina* was the former Spanish frigate *Conseguencia* captured on 28 January 1816. It was next used as a transport and sold in 1822. In December 1825 war with Brazil erupted over the Banda Oriental. On 23 January 1826 the merchantman *Comercio de Lima* was purchased by government, renamed *Venticinco de Mayo* and armed with 36 guns. It sank off Buenos Aires on 11 November 1827 after previous damage in a collision. On 23 May 1826 the Chilean 50-gun frigate *Maria Isabel* was purchased and renamed *Buenos Aires* but foundered in August off Cape Horn. Two further frigates, a second *Buenos Aires* and *Congreso*, were purchased early in 1827. The 42-gun *Buenos Aires* had originally been the British East Indiaman *Asia* launched in 1797. Purchased by the British Navy in 1805 and renamed *Sir Francis Drake*, it was sold out of service in 1825. The 46-gun *Congreso* had originally been the Swedish frigate *af Chapman* launched in 1803 and sold to Colombia also in 1825. To have been refitted in Europe, they were eventually resold with the end of hostilities.

THE CHILEAN NAVY

In 1820 the Chilean Navy included the 64-gun ship of the line *San Martin* and the frigates *O'Higgins* of 50 guns and

Lautaro of 44 guns. *San Martin* was formerly the British East Indiaman *Cumberland* launched in 1802 and *Lautaro* the British East Indiaman *Wyndham* launched in 1800. Both were purchased in 1817. *O'Higgins* was formerly the Spanish frigate *Maria Isabel* captured on 28 October 1818. Originally the Russian *Patrikiy*, *Maria Isabel* had been purchased by the Spanish government also in 1817. Its Spanish name was restored in 1823. A second Spanish frigate, the 44-gun *Esmeralda*, was captured on 5 November 1820. *Esmeralda* had been launched on 30 May 1791 and was renamed *Valdivia* after capture.

The Chilean Navy declined quickly following the end of the War of Independence against Spain. *San Martin* was lost off Chorrillos on 16 July 1821, *Valdivia* sunk as a foundation at Valparaíso in June 1825 and *Maria Isabel* sold to the Argentine on 23 May 1826. *Lautaro* was reduced to a hulk in 1828.

THE COLOMBIAN NAVY

In January 1826 the Colombian Navy comprised *Bolívar* 74 guns, *Colombia* 62 guns, *Cundinamarca* 62 guns, *Congreso* 46 guns and *Venezuela* 38 guns. *Bolívar* was formerly the Swedish *Tapperheten* and *Congreso* the Swedish *Chapman*. Purchased in March and April 1825 respectively, neither was accepted on arrival as their condition was poor. *Colombia* was built at New York and *Cundinamarca* at Philadelphia, both in 1825. *Venezuela* was acquired in 1823.* Only *Colombia* and *Cundinamarca* remained effective as cruisers in 1829. When

* The Dutch East Indiaman *Hoop en Fortuin* was acquired in the same year and renamed *Libertador*. Its refit as a 64-gun ship was unsatisfactory and it was sold in February 1826. Named *Reigersbos* until 1815, *Hoop en Fortuin* was built in 1795.

Venezuela seceded from Colombia that November, *Cundinamarca* was transferred to the new state. It was sold, however, in 1833. *Colombia*, by then in the Pacific, was similarly transferred to the new state of Ecuador but was broken up in 1835.

THE MEXICAN NAVY

The Mexican Navy included the 64-gun ship *Congreso* and the 36-gun frigate *Libertad* in 1827. *Congreso* had been built as the Spanish ship of the line *Asia* in 1789. Taken to Mexico by its crew in 1825 after a mutiny, it sank at Veracruz in 1832. *Libertad* was formerly the Danish East Indiaman *Arveprindsen* built in 1798 and purchased in 1824. Constructed at Philadelphia in 1828 was the 30-gun corvette *Tepeyac*. Known as *Kensington* on the stocks, *Tepeyac* was sold to Russia in 1830.

THE PERUVIAN NAVY

The Peruvian Navy in 1822 included the frigates *Protector* of 50 guns and *Guayas* of 44 guns. The first was originally the Spanish *Prueba* launched on 9 December 1801 and the second the Spanish *Venganza* launched on 16 May 1793. They had been surrendered to the Peruvian government earlier that year on 16 February in the Guayaquil River. *Guayas* was burnt on 25 February 1824 at Callao during a mutiny by the garrison in support of a return to Spanish rule. *Protector* was renamed *Presidente* in 1827 and blew up on 24 May 1829 at Guayaquil.

THE NAVY OF MUSCAT

THE Sultan of Muscat maintained the most powerful fleet in the East including, in 1835, a ship of the line and five frigates:

<i>Liverpool</i>	74 guns.	<i>Humayun Shah</i>	36 guns.
<i>Shah Alam</i>	56 guns.	<i>Prince of Wales</i>	36 guns.
<i>Caroline</i>	40 guns.	<i>Piedmontaise</i>	32 guns.

Three of these ships were built at Bombay. *Liverpool* was launched there on 10 November 1826, *Shah Alam* on 10 February 1819 and *Caroline* in 1814. *Liverpool* measured 1715 tons, *Shah Alam* 1111 tons and *Caroline* 575 tons. *Humayun Shah* was built at Daman and *Prince of Wales* at Rangoon. *Piedmontaise* was launched in 1829 at Cochin. On 9 March 1836 the Sultan presented *Liverpool* to William IV as a gift.

The original *Liverpool* of 50 guns and 1239 tons had been purchased by the Sultan on 16 April 1822 and was a former British frigate launched in London on 21 February 1814. Built of pine, it had decayed rapidly and it was broken up in 1825.

APPENDIX I

ARMAMENT OF THE BRITISH NAVY

WHEN the British Navy adopted the shell gun in 1838, the single-calibre armament of modern ships was extended to the rest of the fleet. Full batteries of 32-pounder guns were to be mounted by 89 ships of the line and 91 frigates.* Each was also to mount a number of 8-inch shell guns, but older ships were still to carry 32-pounder carronades on their upper decks.

Caledonia class: *Britannia*, *Caledonia*, *Hibernia*, *Howe*, *Nelson*, *Neptune*, *Prince Regent*, *Royal George*, *Royal William*, *St George*, *St Vincent*, *Trafalgar*, *Waterloo*.

120 guns: 6 8" shell guns, 100 32-pdrs., 14 32-pdr. carronades.

Royal Frederick class: *Algiers*, *Royal Frederick*, *Royal Sovereign*, *Victoria*.

110 guns: 10 8" shell guns, 100 32-pdrs.

Princess Charlotte class: *Camperdown*, *Impregnable*, *Princess Charlotte*, *Queen Charlotte*, *Royal Adelaide*.

104 guns: 6 8" shell guns, 88 32-pdrs., 10 32-pdr. carronades.

Rodney class: *London*, *Nile*, *Rodney*.

92 guns: 10 8" shell guns, 82 32-pdrs.

* The latter included *Warspite* which was ordered cut down on 19 June 1837.

Asia class: *Asia*, *Bombay*, *Calcutta*, *Canopus*, *Clarence*, *Formidable*, *Ganges*, *Monarch*, *Powerful*, *Thunderer*, *Vengeance*.

84 guns: 8 8" shell guns, 60 32-pdrs., 16 32-pdr. carronades.

Superb class: *Collingwood*, *Goliath*, *Superb*, *Vanguard*.

80 guns: 12 8" shell guns, 68 32-pdrs.

Bellerophon class: *Achille*, *Bellerophon*, *Cambridge*, *Donegal*, *Foudroyant*, *Hindustan*, *Indus*, *Kent*, *Revenge*.

78 guns: 6 8" shell guns, 62 32-pdrs., 10 32-pdr. carronades.

Edinburgh class: *Agincourt*, *Ajax*, *Anson*, *Armada*, *Belleisle*, *Bellona*, *Benbow*, *Black Prince*, *Blenheim*, *Carnatic*, *Cornwallis*, *Defence*, *Devonshire*, *Edinburgh*, *Egmont*, *Hastings*, *Hawke*, *Hercules*, *Hogue*, *Illustrious*, *Imaum*, *Implacable*, *Invincible*, *Malabar*, *Medway*, *Melville*, *Minden*, *Minotaur*, *Pembroke*, *Pitt*, *Redoubtable*, *Russell*, *Stirling Castle*, *Sultan*, *Talavera*, *Tremendous*, *Wellesley*, *Wellington*.

72 guns: 4 8" shell guns, 56 32-pdrs., 12 32-pdr. carronades.

Boscawen class: *Boscawen*, *Cumberland*.

70 guns: 6 8" shell guns, 64 32-pdrs.

Barham class: *Alfred*, *America*, *Barham*, *Conquistador*, *Cornwall*, *Dublin*, *Eagle*, *Gloucester*, *Vernon*, *Vindictive*, *Warspite*.

50 guns: 6 8" shell guns, 44 32-pdrs.

Portland class: *Chichester*, *Java*, *Lancaster*, *Portland*, *President*, *Southampton*, *Winchester*, *Worcester*.

50 guns: 4 8" shell guns, 46 32-pdrs.

Madagascar class: *Africaine*, *Andromeda*, *Druid*, *Endymion*, *Eurotas*, *Forte*, *Forth*, *Horatio*, *Hotspur*, *Isis*, *Leda*, *Madagascar*, *Mæander*, *Nemesis*, *Seahorse*, *Stag*.

44 guns: 2 8" shell guns, 30 32-pdrs., 12 32-pdr. carronades.*

Resistance class: *Æolus*, *Amazon*, *Amphitrite*, *Blonde*, *Boadicea*, *Briton*, *Cerberus*, *Circe*, *Clyde*, *Crescent*, *Dædalus*, *Diana*, *Fisgard*, *Fox*, *Hamadryad*, *Hebe*, *Latona*, *Laurel*, *Leontidas*, *Melampus*, *Mercury*, *Mermaid*, *Minerva*, *Naiad*, *Nereus*, *Penelope*, *Proserpine*, *Resistance*, *Seringapatam*, *Sirius*, *Tenedos*, *Thalia*, *Thames*, *Thisbe*, *Trincomalee*, *Undaunted*, *Uncorn*, *Venus*.

42 guns: 2 8" shell guns, 30 32-pdrs., 10 32-pdr. carronades.

Belvidera class: *Belvidera*, *Brilliant*, *Havannah*, *Owen Glendower*.

38 guns: 2 8" shell guns, 28 32-pdrs., 8 32-pdr. carronades.

Pique class: *Active*, *Amphion*, *Cambrian*, *Castor*, *Chesapeake*, *Constance*, *Flora*, *Inconstant*, *Pique*, *Sybille*.

36 guns: 4 8" shell guns, 32 32-pdrs.

Curacoa class: *Aigle*, *Curacoa*, *Magicienne*, *Tribune*. 24 32-pdrs.

* *Endymion* to mount 2 8" shell guns, 28 32-pdrs., 14 32-pdr. carronades.

APPENDIX II

ARMAMENT OF THE FRENCH NAVY

MODIFIED armaments for new vessels—those laid down after 1822—were specified in an ordinance of February 1837. The armaments of older vessels were similarly modified in a regulation of April 1838. The shell gun now became a standard weapon throughout the navy but carronades were retained, as were 24-pounder and 18-pounder batteries for most ships of older models. New vessels were to be armed as follows:

Ships of 120 guns:	4 22 ^c / _m shell guns, 38 16 ^c / _m shell guns, 62 30-pdrs., 16 30-pdr. carronades.
Ships of 100 guns:	4 22 ^c / _m shell guns, 4 16 ^c / _m shell guns, 62 30-pdrs., 30 30-pdr. carronades.
Ships of 90 guns:	4 22 ^c / _m shell guns, 4 16 ^c / _m shell guns, 58 30-pdrs., 24 30-pdr. carronades.
Ships of 80 guns:	4 22 ^c / _m shell guns, 4 16 ^c / _m shell guns, 54 30-pdrs., 18 30-pdr. carronades.
Frigates of 60 guns:	2 22 ^c / _m shell guns, 4 16 ^c / _m shell guns, 28 30-pdrs., 26 30-pdr. carronades.
Frigates of 50 guns:	4 16 ^c / _m shell guns, 28 30-pdrs., 18 30-pdr. carronades.
Frigates of 40 guns:	4 16 ^c / _m shell guns, 22 30-pdrs., 14 30-pdr. carronades.
Corvettes of 30 guns:	24 16 ^c / _m shell guns, 6 18-pdr. carronades.

The regulation of April 1838 reiterated these provisions for the modern fleet. Vessels of older models were to mount:

Ships of 120 guns:	4 22 ^c / _m shell guns, 38 16 ^c / _m shell guns, 62 30-pdrs., 16 30-pdr. carronades.
Ships of 86 guns:	4 22 ^c / _m shell guns, 4 16 ^c / _m shell guns, 58 30-pdrs., 20 30-pdr. carronades.
Ships of 82 guns:	4 22 ^c / _m shell guns, 4 16 ^c / _m shell guns, 24 36-pdrs., 30 18-pdrs., 20 36-pdr. carronades.
Razees of 58 guns:	2 22 ^c / _m shell guns, 26 36-pdrs., 2 18-pdrs., 28 36-pdr. carronades.
Frigates of 52 guns:	30 24-pdrs., 2 18-pdrs., 20 24-pdr. carronades.
Frigates of 46 guns:	4 16 ^c / _m shell guns, 26 18-pdrs., 16 24-pdr. carronades.
Frigate razees:	4 16 ^c / _m shell guns, 24 18-pdrs.

The 22-centimetre shell gun was designated an 80-pounder and the 16-centimetre shell gun was designated a 30-pounder.

PRINCIPAL DIMENSIONS OF SHIPS

The dimensions of standard classes were revised in June 1837 as shown below (tonnage is again load displacement):

Class	Length	Breadth	Draught	Tonnage
Ships of 120 guns	207.71'	55.79'	25.84'	5082
Ships of 100 guns	205.05'	54.95'	25.07'	4440
Ships of 90 guns	198.49'	53.41'	24.28'	4058
Ships of 86 guns	193.19'	51.79'	23.71'	3750
Ships of 82 guns	182.25'	48.89'	22.29'	3010

Class	Length	Breadth	Draught	Tonnage
Frigates of 60 guns	178.48'	47.57'	20.80'	2557
Frigates of 52 guns	172.24'	45.21'	20.67'	2344
Frigates of 46 guns	152.56'	39.96'	17.68'	1392
Corvettes of 32 guns	138.71'	35.63'	15.52'	1001

APPENDIX III

THE NAVIES OF THE WORLD IN 1838

Class	Great Britain			France			Russia		
	Afloat	Building	Total	Afloat	Building	Total	Afloat	Building	Total
100-120 guns.	16	6	22	6	16	22	4	2	6
80-100 guns.	17	7	24	7	11	18	17	1	18
70-80 guns.	45	2	47	9	-	9	21	1	22
Total	78	15	93	22	27	49	42	4	46
60-64 guns.*	11	-	11	13	9	22	5	-	5
50-60 guns.	8	2	10	12	8	20	-	-	-
36-50 guns.	64	8	72	13	5	18	20	1	21
Total	83	10	93	38	22	60	25	1	26

* Including razees.

THE NAVIES OF THE WORLD IN 1838 (continued)

Class	Netherlands		Sweden		Denmark	
	Afloat	Building	Total	Afloat	Building	Total
100-120 guns.	-	-	-	-	-	-
80-100 guns.	2	-	2	3	1	4
70-80 guns.	3	3	6	5	1	6
Total	5	3	8	8	2	10
60-64 guns.*	1	2	3	-	2	2
50-60 guns.	1	-	1	-	-	-
36-50 guns.	11	3	14	5	1	6
Total	13	5	18	5†	3	8

* Including razees.

† One Norwegian frigate also afloat.

THE NAVIES OF THE WORLD IN 1838 (continued)

Class	Spain		Brazil		Portugal	
	Afloat	Building	Total	Afloat	Building	Total
100-120 guns.	-	-	-	-	-	-
80-100 guns.	1	-	1	1	-	-
70-80 guns.	2	-	2	-	1	2
Total	3	-	3	1	1	2
60-64 guns.*	-	-	-	2	-	-
50-60 guns.	3	-	3	1	1	2
36-50 guns.	3	-	3	2	-	2
Total	6	-	6	5	1	4

* Including razees.

THE NAVIES OF THE WORLD IN 1838 (continued)

Class	The Two Sicilies			Sardinia		Muscat		Austria	
	Afloat	Building	Total	Afloat	Building	Total	Total	Total	Total
100-120 guns.	-	-	-	-	-	-	-	-	-
80-100 guns.	1	-	1	-	-	-	-	-	-
70-80 guns.	-	-	-	-	-	-	-	-	-
Total	1	-	1	-	-	-	-	-	-
60-64 guns.*	1	1	2	2	1	3	-	-	-
50-60 guns.	-	-	-	2	-	2	1	-	-
36-50 guns.	3	-	3	1	-	1	4†	4	4
Total	4	1	5	5	1	6	5	4	4

* Including razees.

† 32-40 guns each.

Two of the Russian ships building were launched on 9 September 1838, both for the Black Sea Fleet: *Tri Svyatitelya* of 120 guns and *Trekh Ierarkhov* of 84 guns. The Black Sea frigate *Varna* was wrecked on 12 June at Sochi in a storm.

The only ship of the line or frigate ordered for the British Navy since 1835 was the 80-gun *Superb* begun in November 1838. Two steamers of 300 horse-power each, *Gorgon* and *Cyclops*, were begun in July 1836 and August 1838 respectively, and two of 280 horse-power each, *Stromboli* and *Vesuvius*, immediately after *Cyclops* in September 1838.

The French 120-gun ship *Trocadéro* was accidentally burnt at Toulon on 24 March 1836 and the 60-gun *Herminie* lost off Bermuda on 3 December 1838. The projected, 120-gun *Formidable* was renamed *Valmy* on 26 November 1836 and begun on 1 March 1838. Construction of five 46-gun frigates was cancelled: *Nymphe*, *Pomone* and *Thémis* in 1836, followed by *Antigone* and *Psyché* in 1837.

Three new frigates of 60 guns that were to have been laid down at Alexandria for the Egyptian Navy during 1837 were not proceeded with. The United States 74-gun ship *Independence*, which carried its midship, lower-deck gun ports only 3 feet 10 inches from the water, was cut down to a 54-gun frigate in 1836. The Dutch 44-gun frigates *Algiers*, *Rupel* and *Rotterdam* were all cut down to 28-gun corvettes, the first two in 1836 also and the last in 1838; the 44-gun *Diana* was accidentally burnt on 16 January 1839 at the Helder. On 3 May 1838 a 60-gun frigate was laid down for the Two Sicilies at Naples and on 25 May an 80-gun ship for Turkey at Eregli. A second 80-gun ship was begun for Turkey on 27 June at Gemlik and on 7 September a 136-gun ship at Constantinople.

APPENDIX IV

BRITISH NAVAL ORDNANCE

Description			Length		Weight		Bore	
			ft.	in.	cwt.	lbs.	in.	
68-pounder gun.			{	8	0	60	0	8.050
				6	8	50	0	
32 " "			{	9	7	63	0	6.410
				9	6	56	0	
				8	0	48	0	
			{	7	6	40	0	6.350
				6	6	32	0	
				6	0	25	0	
5	4	}						
24 " "			{	9	6	50	0	5.823
				9	0	47	56	
				7	6	40	0	
				6	6	33	0	
18 " "			{	9	0	42	56	5.292
				8	0	37	56	
12 " "			{	9	0	34	0	4.623
				7	6	29	56	
9	"	"		7	6	26	0	4.200
6	"	"		6	0	17	0	3.668
68	"	carronade.		5	4	36	0	8.050
42	"	"		4	6	22	0	6.840
32	"	"		4	0	17	0	6.250
24	"	"		3	9	13	0	5.680
18	"	"		3	4	10	0	5.160
12	"	"		2	8	6	0	4.520

A 10-inch shell gun first cast in 1824 was 9 feet 4 inches long and weighed 84 cwt., but was too heavy for general use in the fleet. The 8-inch shell gun introduced in 1838 was 9 feet long and weighed 65 cwt. The 10-inch gun fired a hollow shot of 96 pounds and the 8-inch gun a hollow shot of 56 pounds.

FRENCH NAVAL ORDNANCE

Description	Length of Gun	Weight of Gun		Weight of Shot	
		ft.	cwt. lbs.	lbs. oz.	
36-pounder long.	9.593	69	14	} 38	14
36 " short.	9.090	59	69		
30 " long.	9.281	59	83	} 32	6
30 " short.	8.638	51	27		
24 " long.	9.058	49	37	} 25	14
24 " short.	8.330	41	71		
18 " long.	8.527	40	68	} 19	7
18 " short.	7.877	33	88		
12 " long.	7.992	28	98	} 12	15
12 " short.	7.267	23	12		
8 " long.	8.527	23	1	} 8	10
8 " short.	7.283	19	97		
36 " carronade.	5.951*	22	62	38	14
30 " "	5.863*	19	101	32	6
24 " "	5.154*	14	96	25	14
18 " "	4.711*	11	42	19	7
12 " "	4.085*	7	56	12	15

* Length including cascabel.

An 80-pounder and a 30-pounder shell gun were adopted for service in 1837. The 80-pounder was 9.318 feet long and weighed 71 cwt. 64 lbs., the 30-pounder was 7.963 feet long and weighed 29 cwt. 17 lbs. (both lengths including cascabel).

APPENDIX V

STEAMSHIP CONSTRUCTION TO 1840

SIX large naval steamers had been completed world-wide by early 1840. Five of these vessels were built in Great Britain:

Name	Tons	H.P.	Launched	Length	Breadth
<i>Nile</i> (Egyptian)	1000	240	7 June 1834	180' 0"	33' 0"
<i>Gorgon</i>	1111	320	31 Aug. 1837	178' 0"	37' 6"
<i>Cyclops</i>	1195	320	10 July 1839	190' 3"	37' 6"
<i>Vesuvius</i>	970	280	11 July 1839	180' 0"	34' 5"
<i>Stromboli</i>	967	280	27 Aug. 1839	180' 0"	34' 5"

Nile drew 13 feet forward and 14 feet aft to displace 1452 tons. This total included 540 tons for the hull, 200 tons for machinery and boilers, 45 tons of boiler water and 320 tons of coal. The 220 horse-power engines originally proposed for *Gorgon* were replaced by 300 horse-power ones on 17 October 1837. *Cyclops* was ordered to the same design as *Gorgon* but was lengthened on 14 July 1838 before being laid down.

The largest commercial steamships afloat were also built in Great Britain, all for British transatlantic passenger services:

Name	Tons	H.P.	Launched	Length	Breadth
<i>Great Western</i>	1340	450	19 July 1837	212' 0"	35' 4"
<i>Liverpool</i>	1150	404	14 Oct. 1837	216' 0"	30' 10"
<i>British Queen</i>	2016	500	24 May 1838	245' 0"	40' 0"
<i>President</i>	2366	540	7 Dec. 1839	243' 0"	41' 0"
<i>Britannia</i>	1155	440	5 Feb. 1840	206' 0"	34' 4"

To begin building for a service to India was the 600 horse-power, iron-hulled *Queen of the East*, 282 feet in length (270 feet between perpendiculars) and 45 feet in breadth, measuring 2617 tons. Load draught was to be 15 feet.

Elsewhere the Russian steam frigate *Bogatyr*' was launched on 20 August 1836. *Bogatyr*' was 186 feet in length between perpendiculars and 32 feet in moulded breadth with machinery of 240 horse-power. In the United States, Congress authorized the construction of two ocean-going steamers for the navy in March 1839. They were begun later that year as *Mississippi* and *Missouri*, to measure 1732 tons with a length of 220 feet between perpendiculars and moulded breadth of 39 feet.* The French government laid down the 320 horse-power *Infernal*, its first large war steamer, in January 1840; two others of 450 horse-power, *Asmodée* and *Gomer*, were planned to follow.

* The centre-wheel steam battery *Fulton* lost in 1829 was 153 feet 2 inches in length, 56 feet in moulded breadth and displaced 1450 tons. *Fulton* had twin hulls, separated by the wheel race, with rudders at the ends of both. Armament was to be 30 32-pounder guns. It had also been intended to carry four 100-pounder submarine columbiads, one in the extremities of each hull, but these were never fitted.

BIBLIOGRAPHY

PERIODICALS

Annales Maritimes et Coloniales.

The Age of Sail.

The Colonial Magazine and Commercial-Maritime Journal.

The Mariner's Mirror.

The Nautical Magazine.

The Naval Magazine.

The United Service Journal.

Verhandelingen en Berigten Betrekkelijk het Zeewezen.

Warship.

Warship International.

BOOKS AND OFFICIAL PUBLICATIONS

AICHELBURG, WLADIMIR, *Register der k.(u.)k. Kriegsschiffe von Abbondanza bis Zrínyi.* 2002.

ALEXANDER, SIR JAMES EDWARD, *Travels to the Seat of War in the East.* 2 vols. 1830.

——— *Sketches in Portugal.* 1835.

ALLEN, JOSEPH, *Battles of the British Navy.* 2 vols. 1842.

Nine revised editions published between 1852 and 1911.

ANDERSON, R. C., *Naval Wars in the Baltic, 1522–1850.* 1910.

Reprinted in 1969.

——— *Naval Wars in the Levant, 1559–1853.* 1952.

ANDREA, JULIO, *A Marinha Brasileira.* 2 vols. 1955–6.

ARTINAÑO Y DE GALDACANO, GERVÁSIO DE, *La Arquitectura Naval Española (en Madera).* 1920.

- BARGONI, FRANCO, GAY, FRANCO and GAY, VALERIO MANLIO, *Navi a Vela e Navi Miste Italiane*. 2001.
- BARROW, SIR JOHN, *The Life of George Lord Anson*. 1839.
- BARTLETT, C. J., *Great Britain and Sea Power, 1815–1853*. 1963.
- BAŞ, ERSAN, *Çeşme, Navarin, Sinop: Baskınları ve Sonuçları*. 2007.
- BAUER, K. JACK, *Ships of the Navy, 1775–1969*. 1970. Revised edition, with STEPHEN S. ROBERTS, published in 1991 as *Register of Ships of the U.S. Navy, 1775–1990*.
- ed., *The New American State Papers, 1789–1860: Naval Affairs*. 10 vols. 1981.
- BELHAMISSI, MOULAY, *Histoire de la Marine Algérienne (1516–1830)*. 1983.
- *Marine et Marins d'Alger (1516–1830)*. 3 vols. 1996.
- BIANCHI, M.-X., *Relation de l'Arrivée dans la Rade d'Alger du Vaisseau du S. M. la Provence*. 1830.
- BJERG, HANS CHRISTIAN and ERICHSEN, JOHN, *Danske Orlogsskibe, 1690–1860*. 2 vols. 1980.
- BOITEUX, LUCAS ALEXANDRE, *A Marinha Imperial e Outros Ensaíos*. 1954.
- BOLLAERT, WILLIAM, *The Wars of Succession of Portugal and Spain*. 2 vols. 1870.
- BORDEJÉ Y MORENCOS, F. FERNANDO DE, *Crónica de la Marina Española en el Siglo XIX*. 2 vols. 1993–5.
- BOSTAN, İDRİS, *Kürekli ve Yelkenli Osmanlı Gemileri*. 2005.
- BOUDRIOT, JEAN and BERTI, HUBERT, *Artillerie de Mer: Marine Française, 1650–1850*. 1992.
- *The History of the French Frigate, 1650–1850*. 1993. A translation and enlargement by DAVID H. ROBERTS of *La Frégate: Marine de France, 1650–1850*.
- BOWRING, SIR JOHN, *Report on Egypt and Candia*. 1840. Report presented to Parliament.

- BOURCHIER, LADY JANE, ed., *Memoir of the Life of Admiral Sir Edward Codrington*. 2 vols. 1873.
- BOYMAN, BOYMAN, *Steam Navigation, Its Rise and Progress*. 1840.
- BRENTON, EDWARD PELHAM, *The Naval History of Great Britain, 1783–1836*. 2 vols. 1837.
- BROWN, DAVID K., *Before the Ironclad: Development of Ship Design, Propulsion and Armament in the Royal Navy, 1815–1860*. 1990.
- *Paddle Warships: The Earliest Steam Powered Fighting Ships, 1815–1850*. 1991.
- BULGURCUOĞLU, HACER, *Efsane Gemi Mahmudiye Kalyonu*. 2006. Revised edition published in 2009.
- CANNEY, DONALD L., *The Old Steam Navy*. 2 vols. 1990–3.
- *Sailing Warships of the U.S. Navy*. 2001.
- CHAPELLE, HOWARD I., *The History of the American Sailing Navy*. 1949. Reprinted in 1965, 1974, 1988 and 1998.
- *The Search for Speed Under Sail, 1700–1855*. 1967. Reprinted in 1970 and 1983.
- CHRISTIANSEN, HENRIK, *Orlogsflådens Skibe Gennem 500 År*. 3 vols. 2010.
- CHERNYSHEV, A. A., *Rossiiskii Parusnyi Flot: Spravochnik*. 2 vols. 1997–2002.
- CLOT BEY, A. B., *Aperçu Général sur l’Egypte*. 2 vols. 1840.
- COLLEDGE, J. J., *Ships of the Royal Navy*. 2 vols. 1969–70. Revised edition of volume I published in 1987 and further revisions, with BEN WARLOW, in 2003, 2006 and 2010.
- CREUZE, AUGUSTIN, *Treatise on the Theory and Practice of Naval Architecture*. 1840. A reprint under separate title of the article on ‘Ship-Building’ from *Encyclopaedia Britannica* (seventh edition).
- and MORGAN, WILLIAM, eds., *Papers on Naval Architecture*. 4 vols. 1827–32.

- DALY, JOHN C. K., *Russian Seapower and the 'Eastern Question', 1827–41*. 1991.
- DE KAY, JAMES E., *Sketches of Turkey in 1831 and 1832 by an American*. 1833.
- DEMERLIAC, ALAIN, *La Marine de la Révolution: Nomenclature des Navires Français de 1792 à 1799*. 1999.
- *La Marine du Consulat et du Premier Empire: Nomenclature des Navires Français de 1800 à 1815*. 2003.
- *La Marine de la Restauration et de Louis-Philippe 1er: Nomenclature des Navires Français de 1815 à 1848*. 2007.
- DEVOULX, ALBERT, 'La Marine de la Régence d'Alger', *Revue Africaine*, number 77, September 1869.
- DIJK, A. VAN, *Voor Pampus: De Ontwikkeling van de Scheepsbouw bij de Koninklijke Marine Omstreeks 1860*. 1987.
- DOUGLAS, SIR HOWARD, *A Treatise on Naval Gunnery*. 1820.
Second edition (with new preface but unchanged text) published in 1829 and further revised editions in 1851, 1855 and 1860. Second edition reprinted in 2005 and fourth in 1982 and 2003.
- DOUIN, GEORGES, *Les Premières Frégates de Mohammed Aly (1824–1827)*. 1926.
- DURAND-VIEL, GEORGES, *Les Campagnes Navales de Mohomed Aly et d'Ibrahim*. 2 vols. 1935.
- DÜZCÜ, LEVENT, *Yelkenliden Buharlıya Geçişte Osmanlı Denizciliği (1825-1855)*. 2012. Doctoral thesis presented at Gazi University, Ankara.
- EAST INDIA COMPANY, *The East India Register and Directory. Annual*.
- EDYE, JOHN, *Calculations Relating to the Equipment, Displacement, etc. of Ships and Vessels of War*. 1832.
- EMMONS, GEORGE F., *The Navy of the United States, from the Commencement, 1775 to 1853*. 1853.
- ERCOLE, GUIDO, *Vascelli e Fregate della Serenissima*. 2011.

- ESPARTEIRO, ANTÓNIO MARQUES, *Catálogo dos Navios Brigantinos (1640–1910)*. 1976.
- FAHMY, KHALED, *All the Pasha's Men*. 1997. Reprinted in 2003.
- FINCHAM, JOHN, *A History of Naval Architecture*. 1851. Reprinted in 1979 and 2005.
- FRANCE, MINISTÈRE DE LA MARINE ET DES COLONIES, *État Général de la Marine et des Colonies*. Annual.
- GARDE, H. G., *Efterretninger om den Danske og Norske Søemagt*. 4 vols. 1832–5.
- GARDINER, ROBERT, *The First Frigates*. 1992.
- *The Heavy Frigate*. 1994.
- *Warships of the Napoleonic Era*. 1999. Revised edition published in 2011.
- *Frigates of the Napoleonic Wars*. 2000.
- GLETE, JAN, *Navies and Nations*. 2 vols. 1993.
- GOGG, KARL, *Österreichs Kriegsmarine, 1440–1848*. 1972.
- GOMM, BERNHARD, *Die Russischen Kriegsschiffe, 1856–1917*. 4 vols. 1989–2000.
- GREAT BRITAIN, ADMIRALTY, *The Navy List*. Quarterly.
- GREAT BRITAIN, HOUSE OF COMMONS, *Accounts and Papers: Correspondence Relative to the Affairs of the Levant*. Parts 1 to 3. 1841.
- GÜLEN, NEJAT, *Şanlı Bahriye, 1773–1973*. 2001.
- GÜLERYÜZ, AHMET, *Kadırgadan Kalyona Osmanlıda Yelken: Ottoman Sailing Ships from Galleys to Galleons*. 2004.
- HAMILTON, C. I., *Anglo-French Naval Rivalry, 1840–1870*. 1993.
- HARRIS, DANIEL G., *F. H. Chapman: The First Naval Architect and His Work*. 1989.
- HEPPER, DAVID, *British Warship Losses in the Age of Sail, 1650–1859*. 1994.
- JAMES, WILLIAM, *The Naval History of Great Britain ... A New*

Edition, with Additions and Notes. Edited by FREDERICK CHAMIER. 6 vols. 1837. Reprinted in 1847, 1859, 1886, 1902 and, with new introduction by ANDREW LAMBERT, in 2002.

JONES, COLIN, *Seapower Under Sail*. 2005.

——— *The Birth of the Greek Navy*. 2012.

KURTOĞLU, FEVZI, *Yunan İstiklal Harbi ve Navarin Muharebesi*. 2 vols. 1944.

KUTLUOĞLU, MUHAMMED H., *The Egyptian Question (1831–1841)*. 1998.

LAFAY, J., *Aide Mémoire d'Artillerie Navale*. 1850.

LAMBERT, ANDREW, *The Last Sailing Battlefleet: Maintaining Naval Mastery, 1815–1850*. 1991.

LANGENSIEPEN, BERND and GÜLERYÜZ, AHMED, *The Ottoman Steam Navy, 1828–1923*. Edited by JAMES COOPER. 1995. Revised Turkish edition retaining the original English text with translation by RENAN MENGÜ published in 2000 as *1828–1923 Osmanlı Donanması*.

LAVERY, BRIAN, *The Ship of the Line*. 2 vols. 1983–4.

Volume I reprinted in 1995 and volume II in 1997.

LE CONTE, PIERRE, *Répertoire des Navires de Guerre Français*. 1932.

LEVI, CESARE AUGUSTO, *Navi da Guerra Construite nell Arsenale di Venezia dal 1664 al 1896*. 1896.

LINDSAY, W. S., *History of Merchant Shipping*. 2 vols. 1876.

A reprint under separate title of the last two volumes of *History of Merchant Shipping and Ancient Commerce*.

LÓPEZ URRUTIA, CARLOS, *Historia de la Marina de Chile*.

1969. Revised edition published in 2008.

LYON, DAVID, *The Sailing Navy List*. 1993.

——— and WINFIELD, RIF, *The Sail and Steam Navy List*. 2004.

MAIA, JOÃO DO PRADO, *A Marinha de Guerra do Brasil*. 1965.

Revised edition published in 1975.

- MANERA REGUEYRA, ENRIQUE, et al., *El Buque en la Armada Española*. 1981. Revised edition published in 1999.
- MENDONÇA, MÁRIO F. and VASCONCELOS, ALBERTO, *Repositório de Nomes dos Navios da Esquadra Brasileira*. Third Edition. 1959.
- MONTGERY, M. DE, *Notice sur la Vie et les Travaux de Robert Fulton*. 1825.
- MORRIS, ROGER, *Cockburn and the British Navy in Transition: Admiral Sir George Cockburn, 1772–1853*. 1997.
- NAPIER, SIR CHARLES, *An Account of the War in Portugal*. 2 vols. 1836.
- *The War in Syria*. 2 vols. 1842.
- NØRING, V. H., *Skibbygning og Maskinvæsen ved Orlogsværftet, 1692–1942*. 1942.
- OMAN, MINISTRY OF INFORMATION AND CULTURE, *Oman: A Seafaring Nation*. 1979. Revised editions published in 1991 and 2005.
- ÖRENÇ, ALI FUAT, ‘1827 Navarin Deniz Savaşı ve Osmanlı Donanması’, *Tarih Dergisi*, number 46, pp. 37–81. A publication of the Faculty of Literature at Istanbul University.
- PANZAC, DANIEL, *Les Corsaires Barbaresques: La Fin d'une Épopée, 1800–1820*. 1999. Translated into English by VICTORIA HOBSON and JOHN E. HAWKES in 2005 as *Barbary Corsairs: The End of a Legend, 1800–1820*.
- *La Marine Ottomane: De l'Apogée à la Chute de l'Empire (1572–1923)*. 2009.
- PERA MUSEUM, *Osmanlı Donanmasının Seyir Defteri: The Logbook of the Ottoman Navy*. 2009.
- PORTER, DAVID, *Constantinople and Its Environs... by an American*. 2 vols. 1835.
- PIVKA, OTTO VON, *Navies of the Napoleonic Era*. 1980. Reprinted in 2004 and 2007 under the author's actual name DIGBY SMITH.

- RADOGNA, LAMBERTO, *Storia della Marina Militare delle Due Sicilie*. 1978.
- *Cronistoria delle Unità da Guerra delle Marine Pre-unitarie*. 1981.
- ROCHE, JEAN-MICHEL, *Dictionnaire de Bâtiments de la Flotte de Guerre Française de Colbert à Nos Jours*. 2 vols. 2005.
- ROUSSEAU, ALPHONSE, *Annales Tunisiennes*. 1864.
- RUSSELL, REV. MICHAEL, *View of Ancient and Modern Egypt*. Third Edition. 1838.
- SCHEINA, ROBERT L., *Latin America: A Naval History, 1810–1987*. 1987.
- SCOTT, C. ROCHFORD, *Rambles in Egypt and Candia*. 2 vols. 1837.
- SHALER, WILLIAM, *Sketches of Algiers*. 1826.
- SHARP, JAMES A., *Memoirs of the Life and Services of Rear-Admiral Sir William Symonds*. 1858.
- SILVERSTONE, PAUL H., *The Sailing Navy, 1775–1854*. 2001. First volume of the U.S. Navy Warship series.
- SLADE, SIR ADOLPHUS, *Records of Travels in Turkey, Greece, &c.* 2 vols. 1832. Reprinted 2010.
- *Turkey, Greece and Malta*. 2 vols. 1837.
- SMITH, EDGAR C., *A Short History of Naval and Marine Engineering*. 1937.
- SONDHAUS, LAWRENCE, *The Hapsburg Empire and the Sea: Austrian Naval Policy, 1797–1866*. 1989.
- *Naval Warfare, 1815–1914*. 2001.
- SPAIN, SECRETARIO DE ESTADO DE MARINA, *Exposicion a las Cortes Generales del Reino en 1834*. 1834.
- SPRATT, H. PHILIP, *Transatlantic Paddle Steamers*. 1951. Revised edition published in 1967 and reprinted in 1980.
- STEVENS, JOHN HARVEY, *Some Description of the Methods Used in Pointing Guns at Sea*. 1834.

- SUTTON, JEAN, *Lords of the East: The East India Company and Its Ships (1600–1874)*. 1981. Revised edition published in 2000.
- TEMPLE, SIR GRENVILLE T., *Excursions in the Mediterranean*. 2 vols. 1835–6.
- TENGÜZ, HÜSNÜ, *Osmanlı Bahriyesinin Mazisi: The History of the Ottoman Navy*. 2008. Manuscript prepared for publication by İSKENDER PALA with English translation by EVREN YİĞİT.
- TREDREA, JOHN and SOZAEV, EDUARD, *Russian Warships in the Age of Sail, 1696–1860*. 2010.
- TROUDE, O., *Batailles Navales de la France*. 4 vols. 1867–8.
- TUCKER, SPENCER, *Arming the Fleet: U.S. Navy Ordnance in the Muzzle-Loading Era*. 1989.
- TUPINIER, BARON J.-M., *Observations on the Dimensions of the Ships of the Line and Frigates of the French Navy*. 1830. Translation of an essay first published in *Annales Maritimes: 2e Partie*, volume II, for 1822.
- UFFORD, LETITIA W., *The Pasha: How Mehemet Ali Defied the West, 1839–1841*. 2007.
- UNITED STATES, CONGRESS, *American State Papers. Class VI. Naval Affairs*. 4 vols. 1834–61.
- UNITED STATES, NAVY DEPARTMENT, *Report of the Secretary of the Navy. Annual*.
- VALE, BRIAN, *Independence or Death! British Sailors and Brazilian Independence, 1822–1825*. 1996.
- *A War Betwixt Englishmen: Brazil Against Argentina on the River Plate, 1825–1830*. 2000.
- *Cochrane in the Pacific*. 2008.
- VERMEULEN, A. J., *De Schepen van de Koninklijke Marine en die der Gouvernementsmarine, 1814–1962*. 1962.
- VESELAGO, F. F., *Spisok Russkich Voennykh Sudov s 1668 po 1860 god*. 1872.

- VICHOT, JACQUES, *Répertoire des Navires de Guerre Français*. 1967.
- WADIA, RUTTONJEE ARDESHIR, *The Bombay Dockyard and the Wadia Master Builders*. 1955. Revised edition published in 1957 and reprinted in 1972, 1983 and 2004.
- WALSH, REV. ROBERT, *A Residence at Constantinople*. 2 vols. 1836.
- WINFIELD, RIF, *The 50-Gun Ship*. 1997. Reprinted in 2003.
- *British Warships in the Age of Sail, 1793–1817*. 2005. Revised edition published in 2008.
- *British Warships in the Age of Sail, 1714–1792*. 2007.
- *First Rate: The Greatest Warships of the Age of Sail*. 2010.
- *British Warships in the Age of Sail, 1817–1863*. In preparation.
- WOODHOUSE, C. M., *The Battle of Navarino*. 1965.
- YENER, EMIR, *From Sail to Steam: Naval Modernization in the Ottoman, Russian, Chinese and Japanese Empires, 1830–1905*. 2010.
- ed., *Ottoman Warships in the Age of Sail, 1682–1864*. In preparation.
- ZORLU, TUNCAY, *Innovation and Empire in Turkey*. 2008.

ELECTRONIC RESOURCES

- Brazilian Government Documents* [website]. <<http://www.crl.edu/brazil>> Located on the Centre for Research Libraries Global Resources Network site. Annual ministerial reports include those on the navy.
- CHAPELLE, HOWARD I., *Fulton's 'Steam Battery': Blockship and Catamaran* [online book]. <<http://www.gutenberg.org/ebooks/31179>> Downloadable in various formats from the

Project Gutenberg site. Originally published in 1964 by the Smithsonian Institution as Paper 39 of its *United States National Museum Bulletin* 240.

Historia Naval de España [website]. <http://www.todoavante.es/index.php?title=Página_Principal> Extensive detail on Spanish naval history is available on this site which is still under development.

Historical Navies Forum [website]. <<http://vmach.internet4um.de>> Also under development and intended to include details of navies from 1450 to the present. Registration is required.

Jan-Eriks Sida [website]. <<http://www.fatburen.org/jan-erik.karlsson/>> Includes an extensive database of Swedish sailing and steam warships.

MARTÍNEZ, JOSÉ RAMÓN GARCÍA, *Buques de la Real Armada de S. M. C. Isabel II (1830–1868)* [CD-ROM]. 2005. Includes immense documentary detail on most Spanish warships of the period in pdf format, reproducing partially or fully much relevant archival material.

Naval History and Heritage [website]. <<http://www.history.navy.mil/index.html>> Features a digitized version of the *Dictionary of American Naval Fighting Ships*. A United States Navy Department site.

Naval History During the Age of Line Tactics (1650–1815) [website]. <<http://www.voy.com/39735/>> An open access forum for discussion of questions relating to naval history and navies in the sailing era.

Naval Sailing Warfare History, 1650–1850 [website]. <<http://3decks.pbworks.com/w/page/913970/FrontPage>> Another partially developed site intended to include lists of all sailing navies. Much other very useful material is available.

Orlogsbasen [website]. <<http://www.orlogsbasen.dk>> Digitized plans of sailing warships from the Danish national ar-

chives, amongst other material, are available. The site is still under development.

Orlogsmuseet [website]. <<http://www.orlogsmuseet.dk>> The Royal Danish Naval Museum site. Includes a database of Danish sailing and steam warships.

Sailing Warships [website]. <<http://koti.mbnet.fi/felipe/>> Includes lists of all major and many minor sailing navies. Related illustrations and plans are also available.

Service Historique de la Défense [website]. <<http://www.servicehistorique.defense.gouv.fr>> Includes a section featuring large-scale digitized plans and related material from the *Atlas du Génie Maritime*. Located on the Ministère de la Defense site.

ShipScribe [website]. <<http://www.shipscribe.com>> Section on the French Navy from 1816 to 1859 provides extensive detail from Ministère de la Defense archives.

The Antebellum United States Navy [website]. <<http://www.ibiblio.org/pha/USN/>> Digitized versions of many documents are available including annual *Registers of the Navy* and *Reports of the Secretary*.

Three Decks - Warships in the Age of Sail [website]. <<http://www.threedecks.org>> Currently under development and intended to include databases on the warships, shipwrights, officers and actions of the sailing era. Numerous links to other websites are listed.

Todo a Babor [website]. <<http://www.todoababor.es>> Extensive material is available on Hispanic naval history and navies on this site.

Warships Research [website]. <<http://www.warshipsresearch.blogspot.com.au>> A frequently updated site covering all navies and mercantile marines. Many reports from nineteenth century sources are reproduced.

NOTES ON THE DATA

Books of this kind typically draw information from a variety of sources and it is often impossible to identify what data came from which source. These notes attempt to provide a guide to the sources used for each section of the text. In this regard it should be noted that the bibliography includes a considerable number of items that cover the historical context of the period rather than its navies and ships. As will be evident below, I have taken additional data on specific topics from references not included in the bibliography. Where I discuss these cases I give the name of the author and the title in full together with the year of publication.

The basic source for the list of the British Navy is the *Navy List*, corrected to 20 December 1835, which is supplemented by data from the wide range of additional works now available. Amongst these is a list of the fleet in 1835 published in Parts 2 and 3 of *The United Service Journal* for that year and Part 1 of the next (see respective contents pages for details). The list contains tonnage, building location and other particulars not found in the *Navy List*, but a number of errors and omissions as well. Those in the first instalment are the subject of correspondence in Part 3 for 1835 (see p. 111). The introductory data on the Revolutionary and Napoleonic Wars is based on James's *Naval History* supplemented again by later research. The information on armaments following the main list comes from Brenton's *Naval History* (see vol. ii, p. 699) also supplemented by more recent research. The data on dimensions are from Edye's *Calculations* with additions for the newest ships primarily from Brenton once more. Load displacement and draught for *Royal Frederick* (later *Queen*) are from *The Nautical Magazine* for 1841 (see p. 698). The order for the East India Company's steamer *Auckland* was reported in *The Asia-*

tic Journal for November 1835 (see new ser., vol. xviii, part 2, p. 193). I have not been able to find anything further on this vessel although the smaller *Berenice* was evidently built instead. The breakdown of weights in the appendix—helpful in understanding British ship design at this time—is from Edye. What should be clear from the foregoing is that reliable contemporary material has been used extensively. Wherever possible I have made use of such material throughout this book.

The list of the French Navy is from *Annales Maritimes: Partie Non-Officielle* for 1836 supplemented by later research. Official lists of the fleet were not published regularly in the *Annales* or *État Général* before 1837 although they did appear in budget papers from 1820. The introductory statistics are derived mainly from Demerliac. The fleet totals for 1793 and 1801 include corvettes mounting 24 8-pounders (or similar) as equivalent to British 28-gun frigates. The table of dimensions is from Fincham's *History of Naval Architecture* (see p. 267) but the data itself originates with the report of a French commission on sailing trials conducted by a French and a British fleet in 1832. Unfortunately I have been unable to find a copy of this report. Nevertheless, the figures for newer French vessels are confirmed, albeit converted from metric to their English equivalents, by Augustin Creuze in his *Theory of Naval Architecture* (see p. 24). These dimensions vary slightly from those in the *Atlas du Génie Maritime*, however, which seem to be amendments as they are dated to June 1837. The data on armaments are from *Annales Maritimes: Partie Officielle* for 1829 (see pp. 328–33) and 1836 (see pp. 55–61). The decision of 1824 had been omitted during preparation of the relevant volume so did not appear in the *Annales* until the latter year. Tupinier's proposals were published in the *2e Partie* of the *Annales* for 1822 and translated into English anonymously (by Captain William Jones, R.N.) in 1830. In the case of the

102-gun ship as initially projected, I have adjusted the hull weight from 2143 tons to 2100 tons as Tupinier himself suggests should be done in his discussion.

The principal list of the Russian Navy is based on material in John Tredrea and Eduard Sozaev's fine study *Russian Warships in the Age of Sail, 1696–1860* and Veselago's 1872 classic *Spisok Russkich Voennykh Sudov s 1668 po 1860 god* (*List of Russian Naval Ships, 1668–1860*). I have used New Style launch dates from the appendices to the first two volumes of Bernhard Gomm's *Russischen Kriegsschiffe* in preference to the Old Style dates in most other sources. The list of the Baltic Fleet in 1830 is based on that in *The Nautical Magazine* for 1832 which seems to include the ships in commission (see pp. 124–6). Despite the claim that the information is from a ministerial report, the list contains several errors which I have corrected. The accompanying list of the Black Sea Fleet in the magazine is inaccurate so one from Alexander's *Travels to the Seat of War in the East* (see vol. ii, pp. 18–19) has been substituted. I have included this data primarily to make maximum use of contemporary published records. The description of armaments is drawn from *Uchenie Deystviyu Orudiyami* (*Exercises for Handling the Guns*) of 1837 and formed part of Eduard Sozaev's notes for *Russian Warships*, but was ultimately not used in its original form. The table of dimensions, like its French equivalent, is from Fincham (see p. 412). I have retained the ship names which Fincham himself uses as I cannot associate some vessels shown with ones actually built.

The main lists of both the Turkish and Egyptian fleets are from *Annales Maritimes: Partie Non-Officielle* for 1838 (see vol. ii, pp. 1210–15). The list of the Turkish Navy in *Annales* apparently includes a mistake where a 76-gun ship launched recently at Izmit is called '*Mesoudi  *', as the name duplicates that of an existing vessel (not listed). I have therefore omitted

this name. The ship in question was probably *Fevziye* built at Izmit between August 1834 and May 1837. In the case of the Egyptian Navy additional information has been drawn from Durand-Viel in particular. Dimensions for *Mahmudiye* come from de Kay's *Sketches of Turkey* (see p. 312) which offers the most detailed set I know of. Hacer Bulgurcuoğlu provides two sets in his *Efsane Gemi Mahmudiye Kalyonu* (see p. 47 of the 2006 edition or p. 44 of the 2009 edition). One is from the archives of the Istanbul Naval Museum and has length as 214 feet 8 inches, breadth as 59 feet 8 inches, depth as 29 feet 10 inches, draught forward as 28 feet 3 inches and draught aft as 29 feet 10 inches for a displacement of 5553 tons. The other is from a Naval Museum catalogue of 1915 and has length as 201.5 feet, breadth as 56 feet, depth as 28 feet and draught as 25.5 feet. These sets are compatible, except for draught, if it is assumed the first are English measure and the second in traditional French feet. Note that the first set are expressed as '214.8' feet, '59.8' feet and so on, which I have interpreted as representing feet and inches rather than feet and decimals of a foot because of the two occurrences of '29.10' feet. The exact nature of the measurements is, unfortunately, not specified for either set. The displacement quoted, of course, looks plausible and means that *Mahmudiye* was the largest sailing warship ever completed. The dimensions for *Nusretiye* are from İdris Bostan's *Osmanlı Gemileri* (see p. 336).

Statistics on the Turkish Navy in 1787, 1805 and 1820 are respectively from Zorlu, from Stanford J. Shaw's *Between Old and New: The Ottoman Empire Under Sultan Selim III* published in 1971, and from Durand-Viel and Nejat Gülen. My comments on Navarin draw on Ali Fuat Örenç's recent research and Letellier's account as described in the preface (see above pp. vi–xiii). Details of the fleet in 1834 come from an extensive description of the Turkish naval establishment in

Annales Maritimes: Partie Non-Officielle for 1835 (see vol. ii, pp. 458–77).

Apart from the main list, material on the Egyptian Navy comes from *The Nautical Magazine* for 1833 (see p. 748 for a list of the fleet that year) and 1834 (see p. 431 for a notice of the launch of the steamer *Nile*), from Douin's *Premières Frégates de Mohamed Aly* and again from Durand-Viel which is, perhaps, still the best source in a European language.

The Algerine fleet has been well documented by Bianchi, Devoulx, Shaler, Moulay Belhamissi and Daniel Panzac. The Tunisian fleet is less well documented although Rousseau is helpful. The *Historical Navies Forum* website has useful information on both these fleets.

The Turco-Egyptian conflict of the 1830s has been narrated many times but Muhammed Kutluoğlu provides a refreshing Turkish perspective and Letitia Ufford offers some fascinating insights into the politics of the crisis and into the final campaigns of 1839 to 1840. Material in this section is based on the usual sources for the naval history of the conflict including Allen, Anderson, Bartlett, Daly, Durand-Viel and, of course, Napier's *War in Syria*. The list of the defecting Turkish fleet is based on those in Clot Bey's *Aperçu Général sur L'Égypte* (see vol. ii, pp. 252–4 in the Paris edition or vol. ii, pp. 237–8 in the Brussels edition, both of which were published in 1840) and Hacer Bulgurcuoğlu's *Efsane Gemi* (see p. 64 of the first edition or p. 60 of the second). I have added the year and place of construction which is now known for all the ships involved. Data for Turkish vessels here and elsewhere have been carefully compared to those in Levent Düzcü's admirable thesis referred to in the preface (see above p. xiii). The capture of the frigate *Kafr al-Shaykh* on 20 August 1840 is described by Napier in *War in Syria* without naming the vessel (see vol. i, p. 45). Durand-Viel does so, however, when he refers to the

prize ‘*Cafr-el Cheik*’ captured by Napier in August 1840 (see *Campagnes Navales*, vol. ii, p. 233).

Developments in Egypt under Mehmed Ali were of great interest in Europe and America, so I have added to the bibliography a few of the many contemporary accounts published by travellers. The examples I have chosen naturally contain descriptions of the fleet. The appendix on Navarin comes from the sources already mentioned, Jane Bouchier’s *Memoir* (for Letellier’s account) and Ali Fuat Örenç’s research (for Ibrahim Pasha’s report and other details). The loss of Huseyin Bey’s flagship is related by Durand-Viel (see *Campagnes Navales*, vol. i, p. 419). This vessel must have been *Kûh-ı Revân* as *Burc-ı Zafer* returned to Alexandria in December 1827 and *Fâtih-i Bahrî* was destroyed in the battle.

The list of the United States Navy is based on the *Report of the Secretary* and the *Register of the Navy* with extra details from the extensive available literature. Tonnage is that in use at the time as appears in Emmons and in *New American State Papers: Naval Affairs* (see in particular vol. x, pp. 105–7). Known armaments are not comprehensive for U.S. sailing vessels so I have adopted the approach of describing the maximum that could be mounted. Such was the battery of *North Carolina* in the Mediterranean according to James’s *Naval History* (see vol. vi, p. 415 of the 1837 edition or p. 297 of the 1886 and later editions). This approach makes it possible to give an armament for the huge *Pennsylvania* taking the calibre of guns on each deck from the report of a British officer on the United States Navy reproduced in part in Brian Lavery’s *Ship of the Line* (see vol. i, pp. 212–13). The 90-gun battery for *Ohio* and the *Delaware* class is based on data from Dahlgren’s *Shells and Shell Guns* (see pp. 284–5) partially reproduced by Spencer Tucker in *Arming the Fleet* (see p. 149). When the number of guns United States ships of the line were to carry

after 1820 in these sources is compared to the specified weight of broadside, it is evident an error has been made. The number of 32-pounder guns should total 36 instead of 34 for a broadside of 1710 pounds. I have adjusted the figures accordingly. The armament for *Macedonian* is from Chapelle's *History of the American Sailing Navy* (see p. 360).

To contemporary published lists of the navy I have added two vessels. Frame and other timber for a frigate to be named *Paul Jones* was contracted for on 30 October 1834 and further timber for the same ship on 22 December (see 'Navy Department—Contracts, 1835', *House Executive Documents*, 24th Congress, 1st Session, no. 156, in vol. iv). Although a design for this vessel was never finalized, in 1835 Chief Constructor Samuel Humphreys was working on one for a frigate with a length of 179 feet and breadth of 46 feet 6 inches to mount 30 32-pounder guns and 30 42-pounder carronades (referred to by Donald Canney on p. 84 of *Sailing Warships* where he omits the length which is, however, given for Humphreys' initial 1827 proposal by Chapelle on p. 404 of *American Sailing Navy*). Because this was the only design being actively developed, I have placed *Paul Jones* at the end of the 44-gun frigates. The other recent design was, of course, that of 1829 by Humphreys for the much smaller *Macedonian* laid down in 1833. I have also added *Congress*, removed from the *Register* in 1835 but still in existence, the rebuilding of which had been authorized on 30 June 1834.

The dimensions of *Ohio* are from *The Naval Magazine* (see vol. ii, pp. 590–6) and the original plans of the ship reproduced in Canney (see pp. 98–9). The latter have displacement at a draught of 25 feet, displacement and draught at launch, and weight of ballast noted on them. These figures form a useful comparison with weight data for British and French ships in the appendices to each of those sections. Sketches of the life

of Henry Eckford appear in Canney and Chapelle. The construction of *Nusretiye* by Eckford and then Rhodes is related by Idris Bostan (see pp. 307 and 336) and Levent Düzcü (see pp. 62 and 130).

The list of the Dutch Navy is from *Annales Maritimes: Partie Non-Officielle* for 1836 with extra details added from van Dijk and Vermeulen. As only a selection of construction dates for Dutch warships in this period have been published, I have retained construction years throughout. Data of excellent quality on the Dutch sailing navy can be found on the *Naval Sailing Warfare History*, *Sailing Warships* and *Warships Research* websites. Extensive research by Ron van Maanen can be downloaded from the first-named site. The list of the fleet in 1829 is from *Annales Maritimes: Partie Non-Officielle* for 1832 and armament data is from van Dijk.

The list of the Swedish fleet is based on that in *Annales Maritimes: Partie-Non-Officielle* for 1834 with further details from Daniel Harris's *F. H. Chapman* and *Jan-Eriks Sida* (see under electronic resources). From a summary in *Annales* for 1838, it appears the strength of the fleet remained unchanged in 1837 (see *Partie Non-Officielle*, vol. ii, p. 1209). There is some doubt over when *Wasa* of 1778 was broken up. Most references give 1827 as the year but it was still in service in 1834 and Teemu Koivumaki's normally reliable *Sailing Warships* website has 1836 as the year. This suggests the summary in *Annales* for 1838 might be out of date. Data on the strength of the fleet in 1790 is from Julius Mankell's *Uppgifter Rörande Svenska Krigsmagtens* of 1865. The Royal Norwegian Navy Museum website at <<http://www.forsvaretsmuseer.no/nor/Marinemuseet>> has basic data for the Norwegian frigate *Freia* (the first ship built at Horten).

The Danish Navy has been well documented and material has come from Christiansen, Garde and Nøring in particular, as

well as the *Orlogsbasen*, *Orlogsmuseet* and *Sailing Warships* websites. Data on the fleet in 1790 originates with the detailed list in Louis de Boisgelin's *Travels Through Denmark and Sweden* published in 1810 (see vol. i, pp. 121–3). A great deal of information on the fleet in 1807 is available in Danish and in English. I should point out, however, that I have counted as frigates the small flush-decked cruisers *Lille Belt*, *Fylla* and *Diana*. The last of these was in the Mediterranean and on its way to the West Indies when the British attacked Copenhagen and so survived the raid, only to be lost to the Spanish in 1809 at Cartagena where it had sought refuge.

Material for the Spanish section is from Fernando de Bordejé y Morencos, Gervásio de Artinaño and José Martínez's CD-ROM on the Armada of Isabel II. The fleet lists of Christian de St. Hubert are now available on the *Naval Sailing Warfare History* website in addition to *Warship* (see numbers 37 to 40) and John Harbron's *Trafalgar and the Spanish Navy* first published in 1988 and reprinted in 2004 (see pp. 164–73). José Vazquez Figueroa's *Exposicion* provides contemporary official commentary. Data on the fleet in 1790 is taken from Andrés Muriel's *Gobierno del Señor Rey don Carlos III* of 1839 (see pp. 82–90). A new and valuable resource is the *Historia Naval de España* website.

Reliable contemporary descriptions of the Portuguese Navy appear in Alexander's *Sketches in Portugal* (see pp. 179–80) and Napier's *War in Portugal* (see vol. i, pp. 361–2). A later one appears in Bollaert's *Wars of Succession of Portugal and Spain* (see vol. i, p. 405). Esparteiro's *Catálogo dos Navios Brigantinos* adds necessary data on dates and places of construction. Note that this source apparently transposes the renaming years for the two frigates launched as *Constituição* in 1819 and in 1822. As Esparteiro has it, the first *Constituição* was not renamed *Princesa Real* until 1823 but the second was

renamed *Diana* in 1822. This second vessel, however, fought at the action of 4 May 1823 against the Brazilians under the name *Constituição* and so was evidently not renamed in 1822. Reversing Esparteiro's sequence means the first *Constituição* was renamed in the same year that the new *Constituição* was launched. The appendix with a list of the fleet in 1820 is from Boiteux's *Marinha Imperial e Outros Ensaios* (see pp. 6–7).

Lamberto Radogna's *Storia della Marina Militare delle Due Sicilie* covers in detail, as its title indicates, the Navy of the Two Sicilies. Individual ship histories, construction dates, et cetera, can be found in the author's *Cronistoria delle Unità da Guerra delle Marine Preunitarie*. Several contemporary lists of the fleet were published in the *Annales*. Radogna's *Cronistoria* also includes information on the ships of the Sardinian Navy from its establishment in 1815. Many craft of both navies are described comprehensively by Franco Bargoni, Franco Gay and Valerio Manlio Gay in their *Navi a Vela e Navi Miste Italiane*.

Sources for the Austrian Navy are Gogg and Levi supplemented by Wladimir Aichelburg's more recent work. As the major vessels of the fleet were all French or Franco-Italian in origin, Alain Demerliac's volume for 1800 to 1815 is an important recent reference as well. Inevitably, some differences between these sources emerge, especially over dates. I have found Demerliac the most reliable for the period of the French occupation of Venice. Gogg and Aichelburg give the launch date of the frigate *Carolina*, for example, as 12 March 1808 and 14 March 1808 respectively. Demerliac has 2 December 1807. Correspondence between Prince Eugene, Viceroy of the Kingdom of Italy, and Napoleon indicates that Napoleon himself had seen the launch while at Venice late in 1807, and that the following February *Carolina* was fitting out (see Eugene to Napoleon, 23 February 1808, in vol. iv, p. 78, of A. du Casse,

ed., *Mémoires et Correspondance Politique et Militaire du Prince Eugène* published in 1858–60). The dates of keel laying I have usually taken from Levi, if available, or Demerliac. *Lombardo*, *Semmering*, *Piave* and *Moscova* are exceptions where Demerliac is uncertain and gives an approximate month and the year. I have therefore adopted dates from Aichelburg for these four. Demerliac gives the launch of *Rigeneratore* as taking place in July 1811. Gogg and Aichelburg specify the date as the 7th which, once again, I have adopted. Much disagreement exists over whether and when the ship of the line *Reale Italiano* was renamed *Italiano*. Demerliac states that it was never renamed. Gogg says it was renamed when rebuilt between 1825 and 1829, and Aichelburg when it was subsequently serving as a school ship. Lawrence Sondhaus in *The Hapsburg Empire and the Sea* suggests it was renamed after acquisition by the Austrians in 1814. The only contemporary account I can find is that in Georg von Martens' *Reise Nach Venedig* of 1824. He lists 15 ships of the line and frigates at Venice afloat or on the stocks in 1816 (see vol. ii, pp. 66–7). *Reale Italiano* has been renamed. Other vessels with Napoleonic names objectionable to the Austrians have been likewise renamed. Finally, details of the Venetian Navy in 1787 are from the article on Venice in the *Encyclopédie Méthodique* of 1782 to 1832 (see division *Économie Politique et Diplomatique*, vol. iv, pp. 609–10).

Ministerial reports on the navy from the *Brazilian Government Documents* website are the source for much of the Brazilian section. Other sources include Admiral Prado Maia's *Marinha de Guerra do Brasil*, Admiral Boiteux's *A Marinha Imperial*, and Mendonça and Vasconcelos's essential *Repositório de Nomes dos Navios da Esquadra Brasileira*. Brian Vales' pair of sequential studies *Independence or Death!* and *A War Betwixt Englishmen* are also valuable. The official his-

tory, the Serviço de Documentação da Marinha's massive *História Naval Brasileira* published progressively since 1975, has comparatively little on the vessels of the sailing navy. On the Spanish-American fleets the research of Gerardo Etcheverry is of great significance. He has brought together material from an enormous variety of references and he continues to add to his files. These are all available on the *Todo a Babor* website (click on the main menu item 'Datos y Documentación' and then on 'Listados de Barcos'). A standard history of the Chilean Navy is that by Carlos López Urrutia while Brian Vales' *Cochrane in the Pacific* is informative on many aspects of the early development of the fleet. The Chilean Navy website at <<http://www.armada.cl>> features a range of historical matter. The list of the Colombian Navy in 1826 is based on that in the British Foreign Office's *British and Foreign State Papers, 1825–1826* of 1827 (see 'Report of the Minister of Marine to the Congress of Colombia—9th January 1826' at p. 1099).

The list of the Navy of Muscat is based on that in *Annales Maritimes: Partie Non-Officielle* for 1837 (see vol i, p. 635) supplemented by material from Wadia in particular. Places of construction given in the *Annales* list, however, appear to get out of sequence where *Caroline* is said to have been built at Rangoon. This vessel was undoubtedly built at Bombay as were the first two ships listed, *Liverpool* and *Shah Alam*, all being detailed by Ruttonjee Wadia in his *Bombay Dockyard*. A later list in *Annales Maritimes: Partie Non-Officielle* for 1839 gives the frigates *Shah Alam* and *Caroline* as built at Bombay and *Prince of Wales*, *Humayun Shah* and *Piedmontaise* as built at Rangoon, Daman and Cochin respectively (see vol. ii, p. 447). These three ports appear in that order in the earlier list but are positioned one line higher. That is, they are positioned respectively beside *Caroline*, *Prince of Wales* and *Humayun Shah* while *Piedmontaise*, the last frigate listed, is

said to have been built at Muscat. I have adopted the version in *Annales* for 1839. The places of construction in this version are confirmed by the *Historical Navies Forum* website. The report 'Visit to Zanzibar' by Captain Henry Hart, R.N., concludes with a well-informed description of the fleet there in February 1834 and is reproduced in the multi-volume *Selections from the Records of the Bombay Government* published from 1849 to 1937 (see new ser., no. 24, pp. 273–83). This report affirms too that *Piedmontaise* was built at Cochin (and *Liverpool* and *Shah Alam* at Bombay). It does not mention *Caroline*, *Prince of Wales* or *Humayun Shah* which were presumably then elsewhere. It indicates that the vessel built at Muscat was, in fact, the corvette *Mustafa*. The Omani Ministry of Information and Culture's *Oman: A Seafaring Nation* gives the place of construction as Mattrah, near Muscat, and the year as 1825 (see p. 78). *Annales* for 1839 gives this same place of construction for *Mustafa*.

The list in *Annales* for 1837, with its errors, is almost identical to those in Edmund Roberts's *Embassy to the Eastern Courts of Cochin-China, Siam and Muscat* published the same year (see p. 363) and *A Digest of Existing Commercial Regulations of Foreign Countries* published by the U.S. Treasury in 1833 to 1836 (see vol. iii, pp. 303–4). The list from the latter was reprinted in various periodicals of the day. The Navy of Muscat and its development has been discussed more recently in Gerald Graham's *Great Britain in the Indian Ocean* published in 1967 (see in particular pp. 168–9 and 216–17), in Christine Nicholls's *The Swahili Coast* published in 1971 (see in particular pp. 261–2) and, of course, in *Oman: A Seafaring Nation*.

The armament of the British Navy appearing in Appendix I can be found in *The Nautical Magazine* for 1839 (see vol. viii, pp. 427–30). The armament of the French Navy in Appendix

II comes from *Annales Maritimes: Partie Officielle* for 1837 (see pp. 221–30) and for 1838 (see pp. 519–31). The amended dimensions for standard classes are from the *Atlas du Génie Maritime* available on the *Service Historique de la Défense* website. The table of navies in Appendix III is based on that in Barrow's *Life of George Lord Anson* (see table and discussion on pp. 421–56) corrected as necessary. Dates and locations of keel laying for Turkish new construction in the commentary are from Bülent Işın's *Osmanlı Bahriyesi Kronolojisi: XIV-XX Yüzyıl, 1299–1922* published in 2004. The 80-gun ship begun at Ereğli was launched as *Necm-i Şevket* in 1842 and the 80-gun ship begun at Gemlik was launched as *İclâliye* in 1840. The 136-gun ship was named *Adliye* and was never completed. The material on British naval ordnance in Appendix IV is from Stevens' *Pointing Guns at Sea* (see p. 45) and various editions of Douglas's *Naval Gunnery*. The material on French naval ordnance is from several sources. The basic list is from a table in *Annales Maritimes: Partie Non-Officielle* for 1834 (see vol. i, p. 174). The length of guns in this table is overall, so I have calculated length of barrel in each case by deducting the length of the cascabel. Data for these calculations are in Lafay's *Artillerie Navale* (see pp. 14–15) and the results are identical to those normally quoted, except for the short 36-pounder—none was actually cast so none appears in subsequent literature—and the short 30-pounder. The latter was 9 feet 1½ inches overall (French measure) according to *Annales*, equal to 2964 millimetres, but was 2919 millimetres overall according to Lafay. Although I cannot explain this difference, I have accepted the figures in *Annales* from where I have taken the weights for guns as well. The weight of the short 30-pounder in *Annales* was also somewhat greater at 5318 livres, or 2603 kilograms, than in alternative sources which give 2487 kilograms. Some other weights vary slightly

from those normally quoted, the largest discrepancy being for the long 36-pounder at 7174 livres, or 3512 kilograms, versus the usual 3520 kilograms. As *Annales* has no weights for carronades, I have taken these from Lafay. The weights in Lafay are identical to those in Boudriot and Berti's *Artillerie de Mer* (see p. 114). The length of carronades was always measured overall and the lengths in *Annales* correspond very closely to those in Lafay and in Boudriot and Berti. There are, of course, many sources for data on the early steamers in Appendix V. I have tried here, as elsewhere, to make maximum use of contemporary information including that in *The Colonial Magazine*, *The Nautical Magazine*, Boyman and Fincham. A full description of the Egyptian steam frigate *Nile* can be found in the enlarged 1838 edition of Thomas Tredgold's *The Steam Engine: Its Invention and Progressive Improvement* (see vol. i, pp. 483–91 and, for an illustration and plans, vol. ii, plates 94 and 104–7). In adopting the weights from this description I have added the 10 tons for coal boxes—that is, coal bunkers—to the 530 tons for the hull. The tonnage burthen, which is Egyptian measure, comes from Russell's *Ancient and Modern Egypt* (see p. 317). Plate 104 of Tredgold specifies 911 tons builder's measurement. Details of the proposed iron steamer *Queen of the East* are from Lindsay's *History of Merchant Shipping* (see vol. ii, p. 386 n.) and *The Yearbook of Facts in Science and Art* for 1839 (see p. 12). Those of Robert Fulton's centre-wheel steamer are from Montgery's *Notice* (see pp. 51–9) and Chapelle's *Fulton's 'Steam Battery'*.

As revisions to this edition were being completed, I discovered Guido Ercole's *Vascelli e Fregate della Serenissima*. I have corrected many of the details for the Venetian fleet in the Austrian section on the basis of this authoritative study.

FINAL NOTE

It was my original intention to produce a series of similar volumes covering the period to 1890 which were to include lists of the major warships of the world—ships of the line, ironclads and cruising vessels—at the turn of each decade during the fifty-year transition in maritime construction from sail to steam, from wood to iron and steel, and from smooth-bore cannons to breech-loading rifles. While I plan to continue, some of the websites listed above, and no doubt others yet to be created, will present important alternative sources for this kind of information. A forthcoming publication on post-Napoleonic navies by Andreas von Mach will do the same and, like the websites, incorporate smaller warships as well. I will be emphasizing, however, contemporary material as I have here and I will be including further notes on the data to help readers identify high-quality sources, especially amongst those which were available at the time.

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