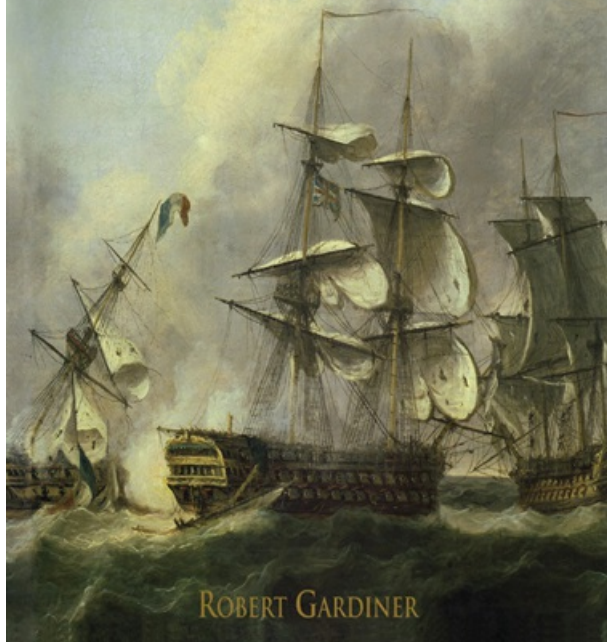


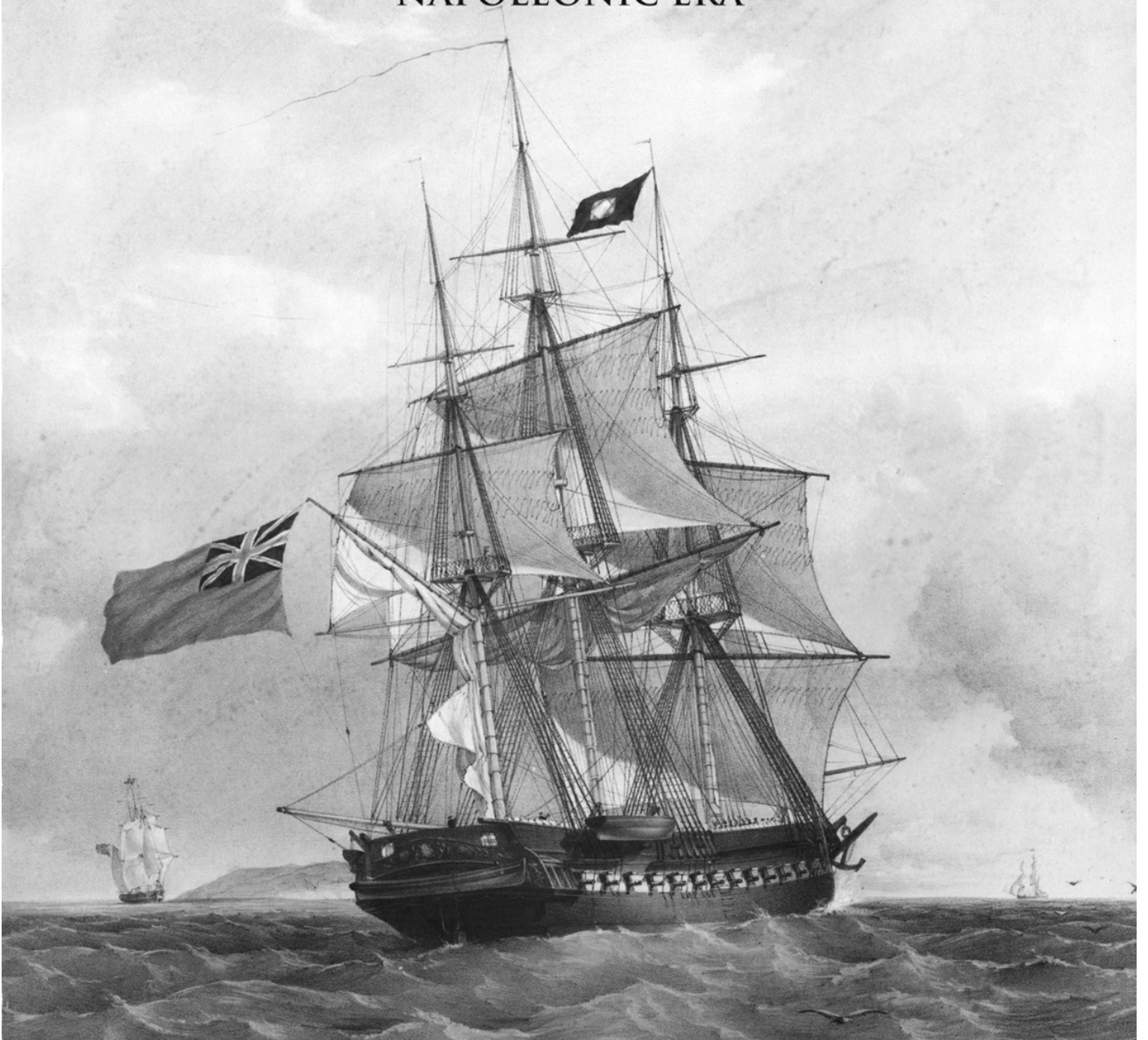
WARSHIPS OF THE NAPOLEONIC ERA

DESIGN, DEVELOPMENT AND DEPLOYMENT



ROBERT GARDINER

WARSHIPS OF THE
NAPOLEONIC ERA







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Seaforth
PUBLISHING

THE classic British frigate portrayed in an accurate and detailed lithograph by Thomas Dutton: the *Leda* class frigate *Pomone* of 1805, built alongside her more famous sister HMS *Shannon* in the Frindsbury shipyard of Josiah & Thomas Brindley on the river Medway (NEG 5666)

NICHOLAS POCOCK'S panorama of Nelson's fleet attacking Copenhagen in 1801. The city is in the distance to the right, with a line of Danish blockships and batteries defending it from the two-deckers of the British squadron. In the left foreground is a row of bomb vessels, lobbing their shells over both lines of ships, and to the right, in action with the Trekroner fort, part of the frigate squadron, including the recognisably pointed sterns of the sloops *Dart* and *Arrow*. Despite compression of the perspective, the view is remarkably accurate in the disposition and types of the ships involved. (BHC0529)

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FOREWORD AND ACKNOWLEDGMENTS

Warships of the Napoleonic Era was first published in 1999 and the text remains essentially unchanged, although there is some additional information on selected themes, as well as the inevitable qualifications and corrections brought about by a decade of further research. What is new in this edition is mainly to be found in the illustrations – most are reproduced in colour for the first time and on a larger page size, which makes the ship draughts far more comprehensible. These plans remain the core of the illustrative material, but there are also a selection of ship models, paintings and contemporary prints, chosen to back specific points in the text.

THE DRAUGHTS

The National Maritime Museum at Greenwich houses the largest collection of original ship plans in the world. The Admiralty collections alone are an almost unbroken technical and historical record dating back to about 1700. However, for the age of sail it has some limitations in the kind of draughts it preserves. The collection is derived from the Navy Board's central record, which are mainly the design plans produced ahead of construction; a short-lived policy of ordering 'as fitted' draughts in the 1770s seems to have collapsed under the weight of work brought on by the American Revolutionary War. As a result, the plans show only what was unique to that design: the hull form, the general arrangement and the basic layout of fittings. Much of the construction, and certainly the fitting out, was governed by standard practice, in earlier years known as 'establishments'. Thus there are few rigging, or even spar, plans; very little illustration of armament; and only the vaguest indication of decorative work.

From other sources it is known that separate plans were prepared for many aspects of design and construction, but most were regarded as ephemeral and only survive in small numbers, often outside mainstream collections. The usual Admiralty draughts comprise: an external elevation, or sheer plan, in three views (side, half-breadth, and body plan); there may be a separate profile showing interior works, but this was often combined in a second colour (red) with the external sheer; deck plans, often one for each level, although small craft may include them all on one sheet; and, as construction became more individual, a disposition of frame. Alterations and additions were often marked on the master draught in green ink, which is a major argument for reproduction in full colour.

Since this book is mainly concerned with the generalities of ship design and function, most of the draughts chosen are sheer or sheer/profile plans, intended to convey the basic characteristics of the ships for easy comparison.

ACKNOWLEDGEMENTS

All but a handful of images in this book come from the collections of the National Maritime Museum at Greenwich, and the book would have been impossible without the enthusiastic cooperation of Douglas McCarthy, Rights & Images Manager of their Picture Library. The debts acknowledged in the original edition still apply, but the author would like to add Jeremy Michell and the present staff of the Brass Foundry at Woolwich, whose helpfulness and hospitality carries on the long and honourable tradition of their institution.

Outside the NMM, we must thank Major Grant Walker of the US Naval Academy Museum and Arnold and Henry Kriegstein for permission to use photos of models in their care.



INTRODUCTION

Modern warship types are usually defined by their function. There is no doubt about the role of an aircraft carrier, minesweeper, or ballistic missile submarine, but in the age of sail it was not so simple. Admittedly, there were specialist types like bomb vessels and fireships, and the line of battle ships – from which the modern term ‘battleship’ derived – were differentiated from frigates and other craft which operated outside the battle line. However, the usual type description was a rating and the number of guns carried – a 98-gun Second Rate, for example. To the modern reader, these divisions seem arbitrary and illogical – why build a 98-gun ship as well as one of 100 guns? – but the rating system often masks quite distinct ship types with their own definable role. The purpose of this book is to illustrate each of the main types, mainly with original draughts, and to provide a commentary pointing out what each class was for, and how they were actually employed during the French Revolutionary and Napoleonic Wars. Of course, some of the ship types can only be explained as a result of developments pre-dating 1793, so some potted design histories are included as well.

In the sections which follow, the descriptions of the function of each type are necessarily generalisations, based on analyses of Admiralty station lists,¹ and the operations in which ships were most commonly involved. It should not be necessary to point out that the exigencies of war inevitably lead to the ‘unsuitable’ employment of many ships simply because they were the only ones available, but the existence of exceptions need not invalidate the overall conclusions. Strategic emergencies like the invasion threats of 1801 or 1803–5 often overrode normal concepts of the employment of certain ship types, but conversely the consistency of Britain’s long-term interests always meant that the Channel and Mediterranean Fleets would have first priority: the best (which at this time was usually synonymous with largest) and newest vessels in almost every class would gravitate to these commands. Since the ship itself was only one part of the ‘weapon system’, individual vessels might be chosen for specific duties because of the known efficiency of the crew, and the reputation of the officers, but the best captains often got the best ships in any case. In his memoirs Captain Philip Durham, an officer with both ability and ‘interest’, claimed, ‘Ships to me are like hackney coaches, so I will take the first off the stand’; he was trying to point out how different was his attitude from that of most officers, but it was a disingenuous claim from a man who contrived to command some of the finest ships in the Royal Navy – the big frigates *Anson* and *Endymion* and the Large Class 74, *Renown*, among others,²

At the other end of the scale, overseas stations were allocated forces in proportion to the importance of British interests and the perceived nature of the threat. Both interests and threats fluctuated during the war, so for example the West Indies was given higher priority early in the war when the administration concentrated on a traditional war against French colonies; later the economic nature of the conflict was reflected in the need for a permanent fleet in the Baltic to keep vital trade routes open – especially the sources of naval stores. These factors influenced employment of ships, but also the types of ships ordered, and even the emphases in their design. In broad terms, the Revolutionary War can be seen as a struggle to contain the French fleet, to allow seapower its traditional freedom to operate against the enemy’s overseas possessions and trade. For this the very best offensive ship types were needed, reflected in very large 74s and 18pdr frigates, but at the same time the very real threat of invasion produced large numbers of small gunboats. After Trafalgar, the French fleet was far less of a threat and invasion fears subsided, to be replaced by a form of global economic warfare which could only be answered by large numbers of ships of every description. This became the era of the standard, usually moderate-sized, ship built in vast quantities: ‘Surveyors’ class 74s, *Apollo* class frigates, and *Cruizer* class brig sloops; even the anti-invasion gunboats grew into seagoing gunbrigs to fill out the numbers.

JOHAN PERRY’S Blackwall Yard on the north bank of the Thames was the largest private shipbuilding facility in the world when Francis Holman painted this view. It shows the yard in 1784 at the height of its success when there were three 74s, two 44s, an East Indiaman and a West Indiaman on the stocks at the same time. Although the very largest warships were only ever constructed in the Royal Dockyards, the existence of a massive commercial industry capable of building anything else required made the Royal Navy unbeatable in any arms race. Indeed, right at the end of the wars, when resources were stretched to the limit, this very yard – then owned by Sir Robert Wigram – turned out three 38s, five large 40-gun and two 50-gun frigates in one remarkable 18-month period. (BHC1866)

Politics also played a part, of course: Lord Spencer’s Admiralty was well disposed towards technological improvement and prepared to spend the extra on larger ships; St Vincent’s, which followed, was not, being elected on a promise to retrench and reform. In the individual ship type descriptions which follow, every attempt has been made to draw out these relationships in the belief that what was done was done for a reason – and often a good one at that.

THE ORDER OF BATTLE

By 1793 the rating divisions were as follows: First Rate – 100 guns and above; Second – 90 to 98 guns; Third – 64 to 80 guns; Fourth – 50 to 60 guns; Fifth – 32 to 44 guns; Sixth – 20 to 28 guns. These were nominal armaments because the introduction of the carronade, which did not figure in the rating system, meant that most ships carried more guns than their listing. At one time the rates had been continuous, but over the years there had been a tendency to concentrate on certain numbers: hence the gaps in the sequence. The first three were regarded as suitable for the line of battle, and the Fifth and Sixth were cruisers; the Fourth had belonged to the line earlier in the century but by now occupied a curious intermediate status, but one which still required a few ships. All rated ships were commanded by Post Captains, but below these were ‘sloops’ (not just sloops of war proper, but any vessels captained by a Master and Commander), and a kaleidoscope of small craft commanded by Lieutenants.

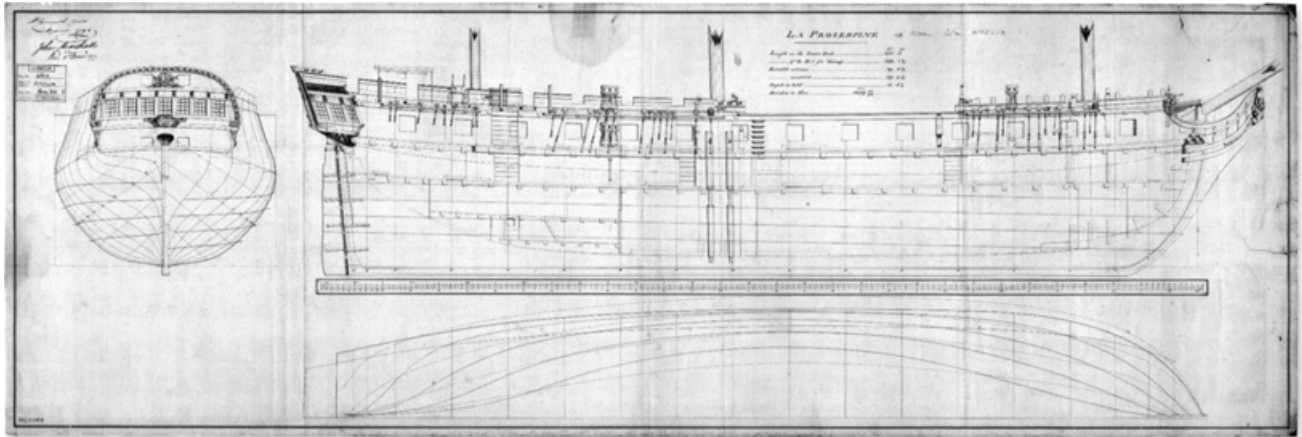
OPPOSING NAVIES

The success of the Royal Navy in the wars of 1793–1815 was unprecedented in the age of sail, victories being achieved against every significant naval power that was arrayed against it. It was British policy to make draughts of every interesting prize, to be studied and retained as part of the Navy’s technical archive. Most of these have survived, and since they tend to show the ships ‘as taken’, they are often more detailed (and

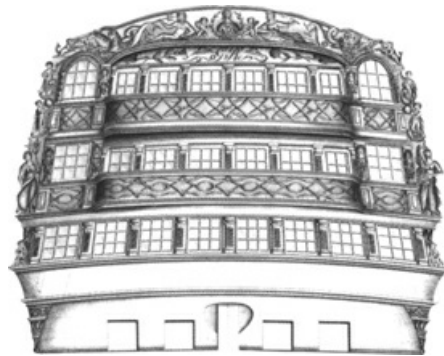
certainly more reliable as evidence of actual appearance and fitting) than any official drawings from their country of origin. Indeed, the archives of countries like France are by no means comprehensive in terms of preserved drawings, and most are very basic lines plans, omitting many of the fittings and decorative work.

In the sections devoted to the Royal Navy's opponents, the examples have been chosen to represent the range of types and characteristic naval architecture of the navy concerned. In the final analysis, all navies reflect state policy, which may impose differing strategic views of seapower and the tactical employment of ships on each navy's designers. This produced subtle variations in the design emphases of each country's warships, so the commentary and captions attempt to explain these in broad terms, by reference to the way the ships were employed during the war.

THE British habit of surveying and making plans of captured enemy ships endowed the Royal Navy with a profound understanding of its opponents' technology. These plans often depicted the ships 'as taken', before they were refitted to meet British needs, and show the original fittings and sometimes even details of the decorative work. This is a fine example: the frigate *Proserpine* built at Brest in 1785, captured in 1796 and renamed *Amelia* in British service. Many European naval archives have been depleted or damaged, and even surviving draughts rarely show this level of detail, so the existence of the Admiralty Collection covering most of the belligerent navies is a boon for historians. (J5575)



THE FIRST RATE



The largest, most powerful and most costly ships to build, maintain and operate, First Rates were the pride of their navies and the embodiment of national honour and self-esteem. They were built to the highest standards, lavishly fitted out and decorated, and carried carefully selected names that promoted the prestige and aspirations of the state. This was equally true whether the country was ruled by a monarchy or a revolutionary junta – the protean politics of the French regimes of the 1790s are mirrored in the frequent name changes visited upon their ships: to give only one example, the royalist *Dauphin Royal* became the proletarian *Sans Culotte* in 1792, and was again renamed *L'Orient* to celebrate France's eastern ambitions.

Because they represented such substantial investments, First Rates were built with the greatest care and attention. Construction was always undertaken by the Royal Dockyards, using the finest materials, and concern for longevity led to prolonged building times to achieve the most profound seasoning. Ten years on the stocks was not unusual, and the shortest time of this period – three and a half years for the *Caledonia* – is misleading because the ship had been ordered ten years previously and it was Dockyard practice to assign, season and even cut timber well in advance of the keel-laying.

First Rates were rarely commissioned except in times of war and crisis, so their hulls were not subjected to the continuous stresses of long sea service. They were also maintained carefully while in Ordinary (reserve), and when necessary were treated to extensive repairs, amounting in some cases to major rebuilding. The aggregate effect of this was to endow First Rates with very long lives: as is well known, *Victory* had been afloat for forty years when she fought at Trafalgar, and *Britannia* was three years older. However, *Victory* had been in Dockyard hands for periods of around six months on four occasions between 1771 and 1788 and was substantially reconstructed between February 1800 and April 1803.

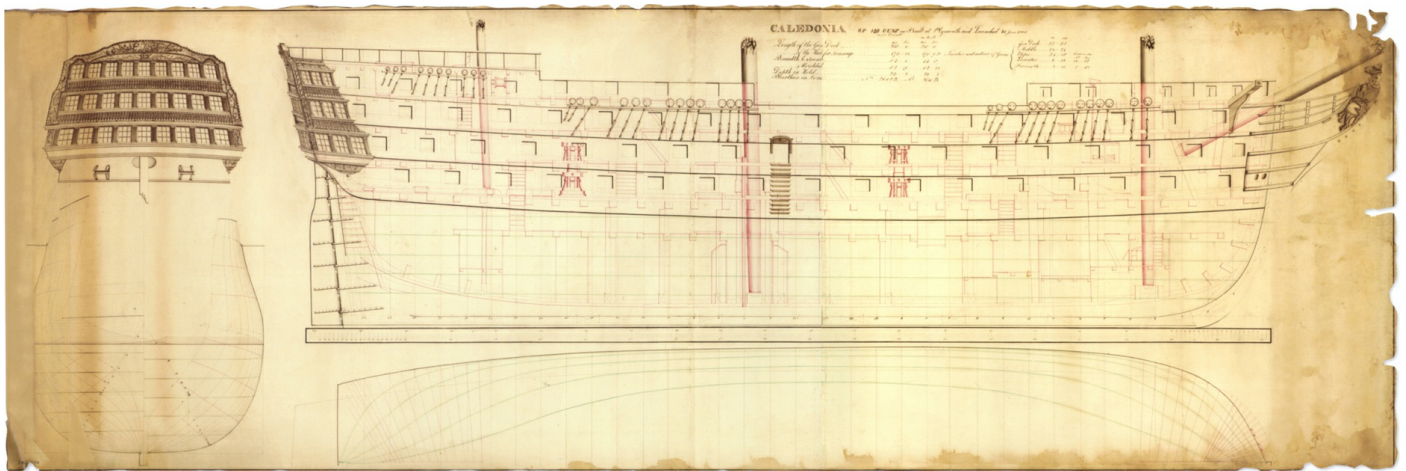
Despite their importance (or perhaps because of it), the development of First Rates in the eighteenth-century Royal Navy was very conservative. By 1700 English First Rates measured about 1800 tons, which by the end of the century had reached 2600 tons, the rate of increase speeding up significantly in the last decades. This is a growth of about 44 per cent, whereas the standard two-decker 70/74-gun ship was enlarged from 1100 tons to 1900 tons (73 per cent) during the same period. The pace of development was not quickened by the small numbers of First Rates built, and although there was steady inflation in size, British First Rates remained smaller than their French and Spanish equivalents until the end of the Napoleonic War. Ever since the *Sovereign of the Seas* of 1637, 100 guns was usually considered the mark of a First Rate (although some seventeenth-century examples rated a few less). They were carried on three full gundecks, plus an armed quarterdeck, forecastle and, often, poop. In 1700 the main calibres were twenty-eight 32pdrs, twenty-eight 18pdrs and twenty-eight 9pdrs, and eighteenth-century development gradually increased the numbers on the gundecks, simultaneously reducing those on the upperworks, and introduced more powerful calibres on most decks. The 18pdrs and 9pdrs became 24s and 12s in 1716, and in 1719 the 32pdrs were replaced with 42s; tonnage did not increase much and the *Royal George*, ordered in 1746, was the first to exceed 2000 tons; the *Victory* of 1758 had thirty guns on lower and upper decks. As with most ship types, there was little improvement during the American War – although the cumbersome 42pdrs were gradually replaced by the more practical 32s – and the next major step forward was the introduction of the 110-gun class with the *Ville de Paris*, ordered in 1788, with thirty ports on each of the lowest two gundecks and thirty-two on the upper (where the calibre was also increased from 12s to 18pdrs); *Hibernia* of 1790 contrived two extra ports per gun-deck, and reached 2500 tons. The last design to see any real service during the war was the *Caledonia* of 1794, the first British 120-gun ship, which mounted thirty-two 32pdrs, thirty-four 24s, thirty-four 18s, and twenty 12s on the quarterdeck and forecastle. Smaller 100-gun ships came into service in the second half of the war, but there was a tendency to down-rate them to 98-gun Second Rates.

There were never many First Rates available, and because of lengthy building times, the substantial programmes of the 1790s were just bearing fruit when the war came to an end. (See [Table 1](#).)

At first sight it is surprising that the world's largest navy did not have the greatest numbers of First Rates, but in 1793 France could boast five of 110 guns and three even larger 118-gun ships; Spain in 1796 was even better off with ten 110-gun ships and the mighty *Santisima Trinidad*, a nominal four-decker of 136 guns and generally regarded as the largest ship afloat. These ships were not only larger – the *Commerce de Marseilles* measured nearly 2750 tons – but the French ships in particular were more powerfully armed with lower deck 36pdrs (about 40 pounds English). However, the Royal Navy possessed a trump card in the form of sixteen small three-deckers of the Second Rate (see next section), which had no direct equivalent in the fleets of either of its main opponents.

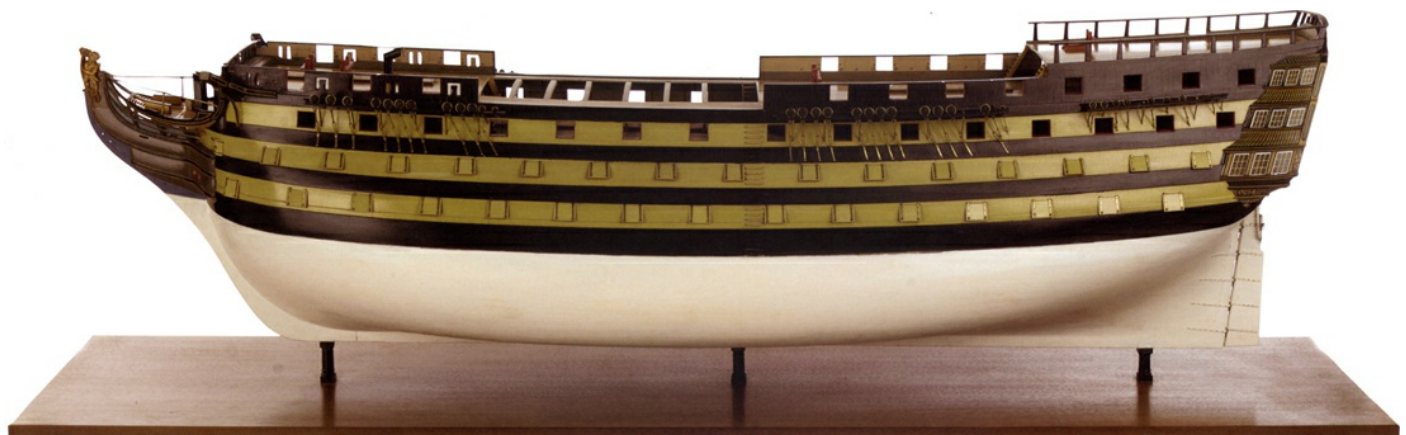


A PERFECT image of the First Rate in all its pomp, the new *Ville de Paris* flying the flag of Admiral Sir John Jervis (shortly to be ennobled as the Earl of St Vincent) leading the fleet out of the Tagus on 31 March 1797. First of the expanded 110-gun ships, the odd-sounding name of this ship celebrated the capture of the French flagship at the Saintes, the first time the Royal Navy had taken an enemy First Rate. This grey wash drawing is by Thomas Buttersworth, a seaman-artist who served with this fleet. (CO860)



C ALEDONIA OF 120 GUNS, AS BUILT AT PLYMOUTH AND LAUNCHED 25TH JUNE 1808.

Representing the wartime development of the First Rate, *Caledonia* shows the new closed-in and more upright stern, as well as the more seaworthy 'round' bow, eschewing the beakhead and built up to forecastle level. The additional gunports are evident but less obvious is the greater freeboard of the lower deck battery, which made the later three-deckers better able to fight in all weathers. The last First Rate to see much active service, *Caledonia* was Gambier's flagship at Basque Roads in 1809, and later Pellew's as commander-in-chief in the Mediterranean. (J1952)



A 1/48TH SCALE MODEL of the *Victory* of 100 guns after her 'Large Repair' of 1800–1803, so showing the overall appearance of the ship as she fought at Trafalgar. The stern was closed in and solid barricades erected along the forecastle and quarterdeck. Note also the so-called 'Nelson chequer' and the lighter figurehead that replaced the elaborate double figure originally fitted. Probably the best First Rate of the second half of the eighteenth century, she had been a popular flagship with such luminaries as Keppel, Howe, Hood and St Vincent before Nelson reputedly asked specially for the ship, then languishing in Ordinary. She was always regarded as a good sailer but it should be remembered that this was relative. Nelson himself only claimed his flagship was the equal of any of the battlefleet in moderate weather, but speed was not the only issue; of course, no three-decker could to work to windward as well as one with less height of topside. (F2281-1)

In battle the First Rate formed a strongpoint in the line, and since they were almost always flagships inevitably attracted more than their fair share of enemy attention. If possible, three-deckers were opposed to their equivalents, so before the First of June action, for instance, Howe reorganised his line to take account of the French First Rates. French and Spanish admirals sometimes transferred to frigates, arguing that being outside the line gave them a better appreciation of the tactical development of the battle; but British admirals were expected to lead by example, metaphorically at least, although at Trafalgar *Victory* and *Royal Sovereign* led in a very literal sense. As with Howe's *Queen Charlotte* at the Glorious First of June, First Rates were usually in the thick of the action, and could mete out tremendous punishment, not just because of the weight of metal thrown but because of the concentrated firepower of three complete gundecks, which was regarded as a very real tactical and psychological advantage. The broadside of a First Rate was about 25 per cent greater than that of a 74-gun ship, but their main batteries were of similar calibres, so that the smaller ship would not shrink from combat with the larger – *Audacious*, 74 attacked the 110-gun *Révolutionnaire* during one the clashes that preceded the First of June action. In practice, however, one need only look at the concentration of ships around *L'Orient* at the Nile or *Santisima Trinidad* at St Vincent to see that beating a First Rate into submission was virtually impossible for a single two-decker.

In truth, the First Rate could survive very heavy damage – in the opening stages of Trafalgar *Royal Sovereign* was engaged single-handed with the enemy line for fifteen minutes before assistance arrived – and no British ship of this rate was lost to enemy action throughout the eighteenth century. Equally, very few were taken from the enemy (although significantly more were destroyed in battle); the first was de Grasse's *Ville de Paris*, captured at the Saintes in 1782 and lost in a gale in the same year.³ In 1793 the British carried off the huge *Commerce de Marseilles* from Toulon, but she proved so weakly built that she never cruised. Similarly, of the two Spanish three-deckers taken at St Vincent only *San Josef* enjoyed an active career in the Royal Navy – the only prize First Rate to do so. It is possible that this ship was fitted out primarily as a tribute to her captor, Nelson, whose flag she was intended to carry, but the need to replace the *Queen Charlotte*, destroyed by fire in 1800, may have been a greater spur. Because First Rates usually carried the flags of the most senior admirals, their careers were particularly vulnerable to the whims of these influential officers. Nelson is usually credited with rescuing *Victory* from ignominious service as a hospital ship in 1800, but her fine sailing qualities had made her a perennial favourite – between 1778 and 1812 the ship flew the flag of sixteen senior officers. Prejudice could also work the other way: *Queen Charlotte*'s central role in the 1797 Great Mutiny and suspicions of continuing disaffection among her crew made her very unpopular, and when she was sent out to the Mediterranean in 1799 Lord St Vincent – a great believer in his own powers as a disciplinarian – is reported to have told the Admiralty, 'The *Queen Charlotte* will be better here than on home service, for she has been the root of all the evil you have been disturbed with.'⁴ She spent some time as a private ship (*ie* with no flag officer embarked), and many regarded the accidental fire that destroyed her as the final manifestation of her inefficiency.

In terms of deployment, First Rates were almost exclusively reserved for the two main fleets, in the Channel and Mediterranean, priority depending on the strategic situation. Cornwallis was to have taken the *Royal Sovereign* to the West Indies in February 1796, but a collision in the Channel only served to emphasise the vulnerability of these huge ships and no First Rate was permanently stationed outside the main fleets for the rest of the war.⁵ Nelson, it is true, took the *Victory* to the West Indies during his pursuit of Villeneuve in 1805, and the same ship was Baltic flagship from 1808, but the first instance was a temporary visit and by 1808 she had been reduced to a Second Rate, which were not so restricted in their deployment. These ships were important assets that were jealously guarded: First Rates were unwieldy to handle, drew anything up to 27ft, and needed a major dockyard close at hand in case of anything but minor damage. During the war attitudes changed – under Lord Howe's regime they were not risked off the French coasts except in the summer months, whereas St Vincent took a more robust attitude to the blockade. However, it is worth pointing out the superior characteristics of the newer ships that supported this policy. *Queen Charlotte*'s lower ports had only 4½ft of freeboard and after the skirmish of 29 May 1794 her lower gundeck was full of water; *Caledonia*, in contrast, managed one foot more, and much of St Vincent's effort as First Lord of the Admiralty was directed towards greater gunport freeboard for line of battle ships.

Improvement was slow because so few new ships entered the fleet. In the early years of the war *Britannia* and *Victory* were assigned to the Mediterranean and the three newest ships to the Channel, the fleet flagship being the *Queen Charlotte*. After working up at home in 1797 the new *Ville de Paris* was sent to St Vincent's 'Mediterranean' fleet (actually operating on the coast of Portugal and southern Spain) to succeed *Victory* as flagship; the latter, as well as *Britannia*, then came home for long periods of inactivity, as a hospital ship in the first case, and to be given a major repair in the other. As an example of changing priorities, when Admiral Bruix's fleet escaped into the Mediterranean from Brest in 1799 three of the four First Rates in commission were sent south, leaving only the *Royal George* in the Channel. Conversely, in 1801 with the threat of imminent invasion from across the Channel, all four First Rates, including the newly commissioned *San Josef* were at home – in fact, including the Second Rates, Cornwallis could call on fifteen three-deckers! Additions to the fleet thereafter were few: *Hibernia* in 1805 and *Caledonia* in 1809, and a couple of First Rates towards the end of the fighting in Europe. On the other hand, a number of smaller designs ordered as First Rates were completed as Seconds. After Trafalgar, First Rates continued in commission in the main fleets, since Napoleon's powers of organisation made the threat of a revival in French naval power seem realistic to many in Britain, but the era of large-scale fleet engagements was over.



AFTER TRAFALGAR there were no more fleet-scale battles and the task of the First Rate settled down to commanding the forces blockading the main French fleets in Brest and Toulon. There were not many opportunities for action and probably the last time during the war that a First Rate got close enough to the enemy to open fire was a skirmish on 5 November 1813 when a squadron of the Mediterranean Fleet under Sir Edward Pellew attempted to cut off a division of the French fleet exercising off Toulon. This painting by Thomas Luny shows Pellew's flagship, the *Caledonia*, firing on the most laggardly French ship, shown as a two-decker (in fact, it should have been the 130-gun *Wagram*). Painted a long time after the event, it exaggerates the effects of the action (no French ship lost a topmast), but it is a credible portrait of *Caledonia*. The ship off her bow is the 98-gun *Boyne*. (BHC0604)

TABLE 1 Numbers of First Rates

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing*</i>
1793	1	4
1796	6	0
1799	4	2
1801	4	2
1805	6	1
1808	4	2
1811	5	2
1814	7	0
1815	0	8

* In the tables of this type that follow, all warships converted to other uses or in harbour service have been excluded; they list only ships in active service or available for it.

TABLE 2 Typical First Rates

<i>Ship</i>	<i>Navy built for</i>	<i>Date launch</i>	<i>Length ft–ins</i>	<i>Breadth ft–ins</i>	<i>Burthen tons</i>	<i>Armament</i>
<i>Prince Frederick</i>	Dutch	1777	156–9	42–11	1267	24 x 24; 26 x 18; 10 x 9; 4 x 9
<i>Lion</i>	British	1777	159–0	44–6	1373	26 x 24; 26 x 18; 10 x 9; 2 x 9
<i>Rattvisan</i>	Swedish	1784	162–6	45–4	1437	26 x 24; 26 x 18; 6 x 6; 2 x 6
<i>Ardent</i>	British	1796	173–3	43–0	1416	26 x 24; 26 x 18; 10 x 9; 2 x 9
<i>Athenienne</i>	French*	1796	163–3	44–9	1411	26 x 24; 26 x 18; 2 x 9 + 8 x 24 carr; 2 x 9 + 4 x 24 carr

NOTE: Armament is given number of guns × calibre in pounds in the order – lower; middle; upper gundecks; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades. A few carronades were often added on the poop, and *Victory* had 2 × 68 carr on the forecastle at Trafalgar.

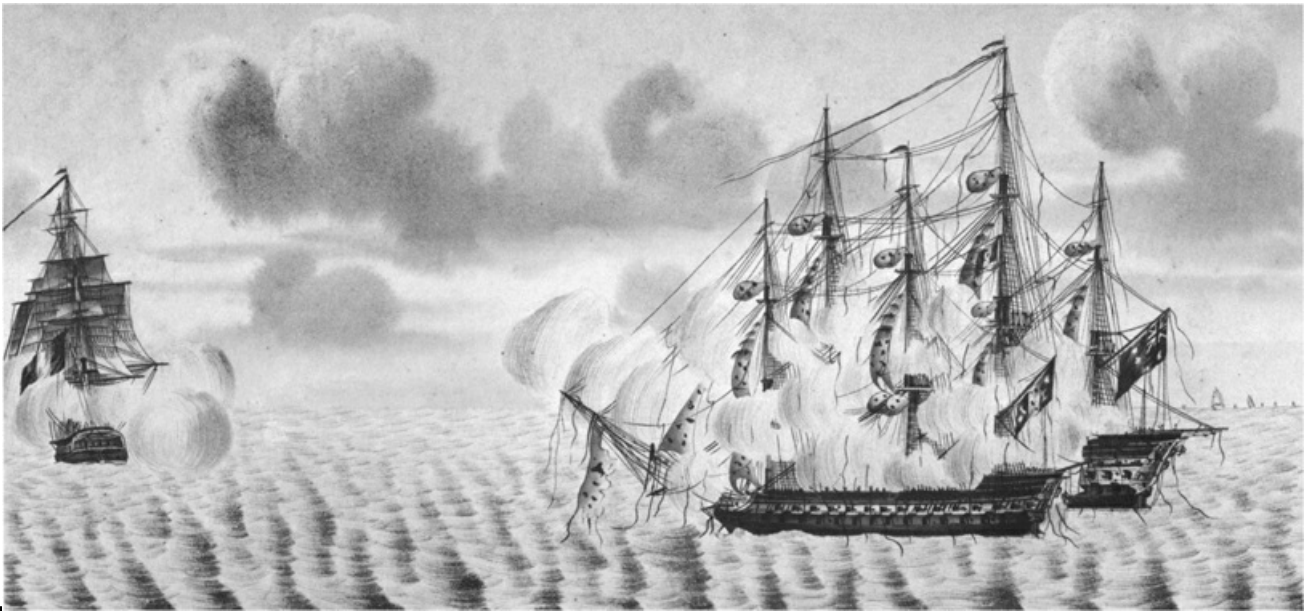
THE SECOND RATE



The small three-decker of 90 or (since 1778) 98 guns, was a characteristically British ship-type, with no exact equivalent in the navies of France or Spain.⁶ However, as the historian William James pointed out, the very large two-decker of 80 or more guns favoured by those countries was the best match – and the type was actually more powerful if judged entirely by broadside weight of metal (including carronades, 1287 pounds for a French 80 compared with 1012 pounds for a British 98). Yet the Royal Navy exhibited so strong a preference for the three-decker that it clearly believed it had palpable advantages. These were essentially its superiority in battle: the higher command of the third deck gave it a tactical advantage, as well as a depressing effect on enemy morale. However small and relatively weak in firepower, the Second Rate was still a three-decker, and James himself notes with regret a number of incidents in which opposing fleets take flight after over-estimating, by his criteria, the power of the three-deckers in the British fleet. In practice, this was no mean advantage.

What made this advantage particularly attractive to the British was its relative economy. The Second Rate was cheaper to build and maintain, and so could be risked in more theatres of operation, than the First Rate, but had many of the latter's desirable qualities in battle. It was almost as robust, for example: during the battle of Cape St Vincent *Blenheim* was surrounded by five Spanish ships, including a three-decker and the *Santisima Trinidad*, and was reported to have received 105 hits in the hull; yet she had only 13 killed and 48 wounded.

For most of the age of sail, and well beyond, the Royal Navy had extensive commitments, which could only be covered by numbers of ships. This led to a consistent and almost unbroken policy which not only resisted growth in the individual sizes of ships but also preferred the smallest and cheapest type that could do the job. In this respect the 98, an 'economy' three-decker, is a characteristic British ship type. Unfortunately, if quantity has a higher priority than quality, then economy must be bought at the expense of capability. For the Second Rate, that penalty was in sailing qualities and seakeeping. Since speed is largely a function of waterline length, short designs like the 98 tended to be slow; furthermore, because the height between decks was more or less fixed by the size of human beings, they were relatively tall for their length, which made them leewardly. In fact, the Second Rate suffered an unenviable reputation in the fleet for dismal sailing and clumsy handling. A particularly spectacular example was Lord Bridport's hurried attempt to leave Spithead in pursuit of a French squadron on Christmas Day 1796. *Prince*, 98 missed stays and collided with *Sans Pareil*; *Ville de Paris* was hit and damaged by *Formidable*, 98; and *Atlas*, 98 ran aground. Admiral Jervis, not yet St Vincent, had a very low opinion of the discipline and seamanship of the Channel Fleet at this time, but his own *St George*, 98 ran foul of a Portuguese frigate and then ran hard aground not a month later in the river Tagus. At Trafalgar the notoriously poor sailing of the *Prince* (which 'sailed like a haystack' according to Lieutenant Hoffman) and *Dreadnought* (and the First Rate *Britannia* for that matter), led Nelson to instruct them to make a more slanting approach, in the hope that allowing more sails to draw would help them to keep up. This is why in the more accurate depictions of the battle these ships seem to belong to neither line.



THESE two views are emblematic of the strengths and weaknesses of the Second Rate. In battle they were always superior to any two-decker, even big French 80-gun ships with a heavier broadside. This drawing by a French seaman who was present shows the capture of Admiral Linois's flagship the *Marengo*, 74 by the 98-gun *London* on 13 March 1806. Although the British ship is largely hidden, the poop suggests the greater height of a third battery deck that gave the Second Rate the psychological advantage in any close engagement. (D9228)

Attempts had been made to improve the Second Rate during the century, size having grown from about 1420 tons in 1700 to 2100 tons at the end (a 48 per cent increase). Gunpower also increased from twenty-six 32pdrs, twenty-six 18pdrs, twenty-six 9pdrs and eighteen 6pdrs to twenty-eight 32pdrs, sixty 18pdrs (on two decks) and ten 12pdrs in the same period. In the 1750s an attempt to improve their sailing qualities was made by reducing the quarterdeck armament to a couple of chase guns, but this was compromised in 1778 when the nominal 90s had become 98s by the addition of eight 6pdrs to the quarterdeck. Numbers were always far greater than those of First Rates, but it is noticeable that while the larger ships were kept in service almost until the end of the fighting, Second Rates began to decline in numbers after Trafalgar. This probably reflects the continuing need for prestige fleet flagships, while admirals on relatively minor stations preferred the superior sailing of large two-deckers in their choice of flagships. Since there were virtually no similar ships in enemy navies, numbers could not be augmented by capture.

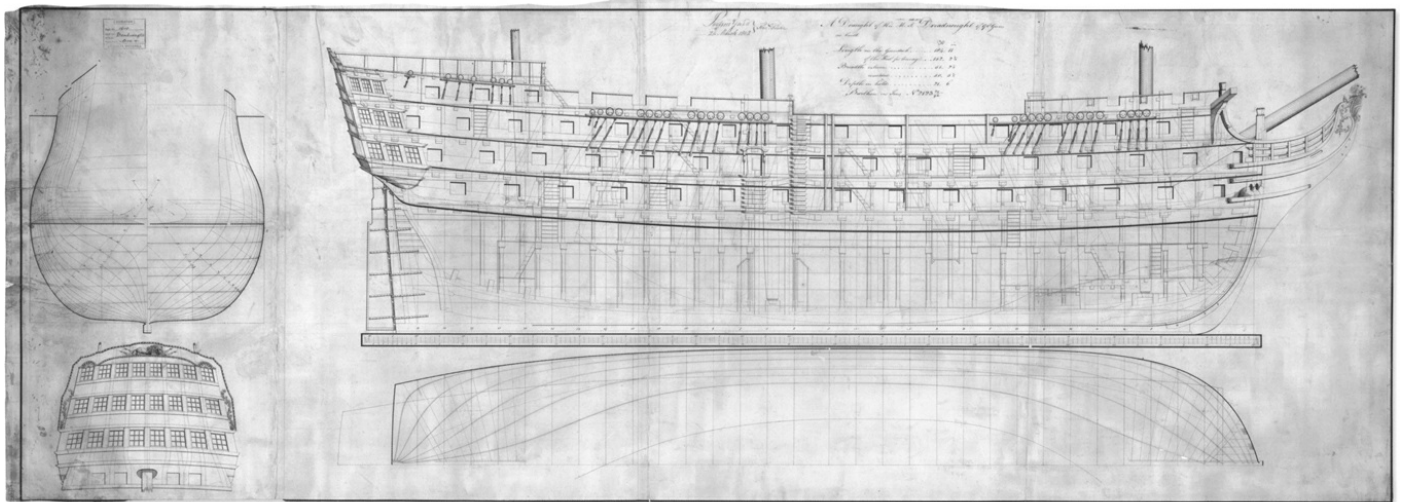
Much of what was written above about the deployment of First Rates also applies to Seconds. They were concentrated in the Channel and Mediterranean fleets, usually carrying the flags of the subordinate divisional commanders. In this capacity they sometimes led squadrons on detached cruises, but in the context of the Channel Fleet their poor sailing made them even more vulnerable than First Rates to the perils of blockading the French coast. The close blockade was nerve-wracking enough in two-deckers, but virtually suicidal in anything larger. In 1804 Cornwallis protested to the Admiralty about Captain Hurd's plan to do just that: 'Some of our bravest captains in the last war, I have been told, got into three-decked ships to avoid such service, and would Captain Hurd place the whole squadron, chiefly composed of three-deckers, in such an alarming situation?'⁷

In actual combat Second Rates were in their element and many fought with distinction in all the major deep-water combats up to and including Trafalgar. Unlike the First Rates, however, some 98s were released for service further afield than home or Mediterranean waters. From the beginning of the war important colonial expeditions were commanded from Second Rates: *Queen* (and *Duke*) were involved in the attack on Martinique in 1793, and *Boyne* carried Sir John Jervis's flag for the West Indies campaign of 1794. From then on there was often a Second Rate, or occasionally two, in these waters: *Impregnable* and *Glory* were ordered to the West Indies late in 1795, but bad weather forced them back and they were replaced by *Queen* and *Prince of Wales* later in the year; the Leeward Island station was important enough to warrant a 98 as flagship for much of the rest of the war.

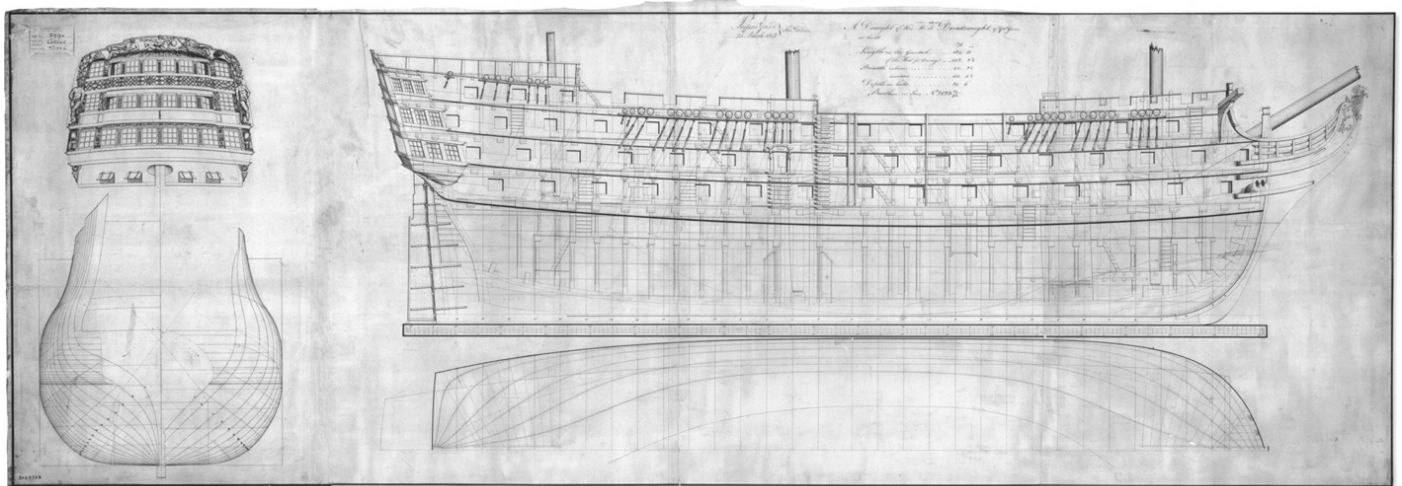
One advantage of the 98 over the First Rate was a slightly reduced draught – perhaps 2ft less. As a result Second Rates were sometimes employed where their larger consorts would not float. During the Nore mutiny in 1797 *Formidable* and *Prince* were sent from the Channel to reinforce Duncan's North Sea squadron but the emergency was soon over and they were not risked among the shallows and sandbars of the Dutch coast. However, when at the beginning of 1801 an expedition to Denmark and the Baltic was mooted – with shallow water again in prospect – the proposed flagships were *St George* and *London*, 98s. Nelson eventually abandoned the former to lead the attack on Copenhagen from a 74, but there began an association between Second Rates and the Baltic that was renewed during the Napoleonic War. *Prince of Wales* was Gambier's flagship for the 1807 assault on Copenhagen, and at various times between 1808 and 1812 Saumarez's Baltic Fleet included the *Formidable*, *Dreadnought*, *Temeraire* and *St George*. During the war the Royal Navy became more adventurous in the use of its large ships in all weathers and all the year round, but just how great were the risks of this policy was underlined by the loss of the *St George* in a gale when returning from the Baltic in 1811; admittedly, the ship was jury-rigged, but the notoriously poor handling of the 98s had some bearing on a disaster in which 850 men died.



THE reverse of the medal: representing the poor sailing qualities and cumbersome handling of all Second Rates, the *St George* lies aground and almost completely dismasted on the Tagus bar off Lisbon in January 1797. It took two days to refloat the ship, and longer to repair her, so as a result Jervis was lacking one powerful Second Rate when he met the Spanish fleet at St Vincent two weeks later. The ship went on to garner a distinguished fighting record – including briefly acting as Nelson’s flagship in 1801 – but paid the ultimate price for her poor seakeeping when she was wrecked off Jutland in 1811. (PAH0745)



A DRAUGHT OF HIS MS DREADNOUGHT OF 98 GUNS, AS BUILT. PORTSMOUTH YARD, 24TH MARCH 1802. The Second Rate was substantially increased with this class, designed in 1788. Almost as large as the *Victory*, the *Dreadnought* was later reclassified as a First Rate. This draught shows the standard developments of the time: built-up barricades fore and aft, with large ports for carronades, and a flat enclosed stern; the longer decks allow more room at either end of the gun batteries, permitting chase ports on the two lower decks forward. This ship and her sisters *Temeraire* and *Neptune* all fought at Trafalgar. (J1775)



DRAUGHT OF HIS MAJESTY’S SHIP ATLAS OF 98 GUNS LAUNCH’D AT CHATHAM THE 13 FEBRUARY 1782. An excellent example of the short-lived practice of insisting builders submit an ‘as fitted’ draught of every ship to the Navy Board, which not only

recorded more detail but often included the decorative work as well (note the magnificent figurehead of the Titan carrying the world on his shoulders). This policy in force during the 1770s, seems to have died out under the pressure of work in the American Revolutionary War. Second Rates were built in significant numbers in the mid-century but barely grew in size from 1755 to the 1790s, the *Atlas* being one of the last of this generation. An instructive comparison may be made with *Victory*, which reveals that although shorter the smaller rate has the same height of side. This tended to make them both slower and more leewardly under sail, a problem exacerbated by the addition of higher barricades and poop rails when guns were added to the quarterdeck during the American War. Like all Second Rates, the ship suffered from poor sailing qualities and was cut down to a 74-gun two-decker in 1802–1804. (J1638)

TABLE 4 Typical Second Rates

Ship	Navy built for	Date launch	Length ft-in	Breadth ft-in	Burthen tons	Armament
<i>Atlas</i>	British	1782	177-6	50-0	1931	28 x 32; 30 x 18; 30 x 12; 8 x 6; 2 x 6
<i>Dreadnought</i>	British	1801	185-0	51-0	2254	28 x 32; 30 x 18; 30 x 18; 8 x 12; 2 x 12

NOTE: Armament is given number of guns x calibre in pounds in the order - lower, middle, upper gundecks, quarterdeck, forecastle.

TABLE 3 Numbers of Second Rates

Year	No in Sea Service	No in Ordinary or Repairing
1793	4	12
1796	16	0
1799	15	2
1801	14	2
1805	11	3
1808	7	4
1811	8	4
1814	5	3
1815	2	5

SPEED AND LENGTH

IN the years following the end of the American Revolutionary War there was a rising tide of opinion among British sea officers that Royal Navy ships were not as fast as their French equivalents. It was well understood that in design terms the major determinant of speed was waterline length, and it was equally well known that British ships tended to be shorter in relation to breadth than French vessels. Therefore, if increased speed were to be given priority, it was logical to design hulls with a greater length-to-breadth ratio; and in the 1790s this is what was done in a conscious and consistent policy undisturbed by political and personnel changes at the Admiralty.

An early and very clear instance was the 36-gun *Phoebe* class ordered in May 1794, which simply took the previous design, added about 5ft amidships and re-spaced the gunports. This began a process whereby the length of frigates escalated from about 3.6 times the breadth to 3.75 and eventually to over 3.9. Speed is an understandable requirement in a frigate, but improvement was also sought in the line of battle by similar means – indeed, such was the importance placed on this quality that lengthening was often ordered after the design was completed. Emblematic of this procedure are a series of draughts where the paper was physically cut in half and a strip inserted to accommodate an additional section amidships. The example shown here is the 74-gun *Kent* ordered to be lengthened, a year into her construction, in December 1796, but it can be seen in ships as large as the First Rate *Hibernia*.

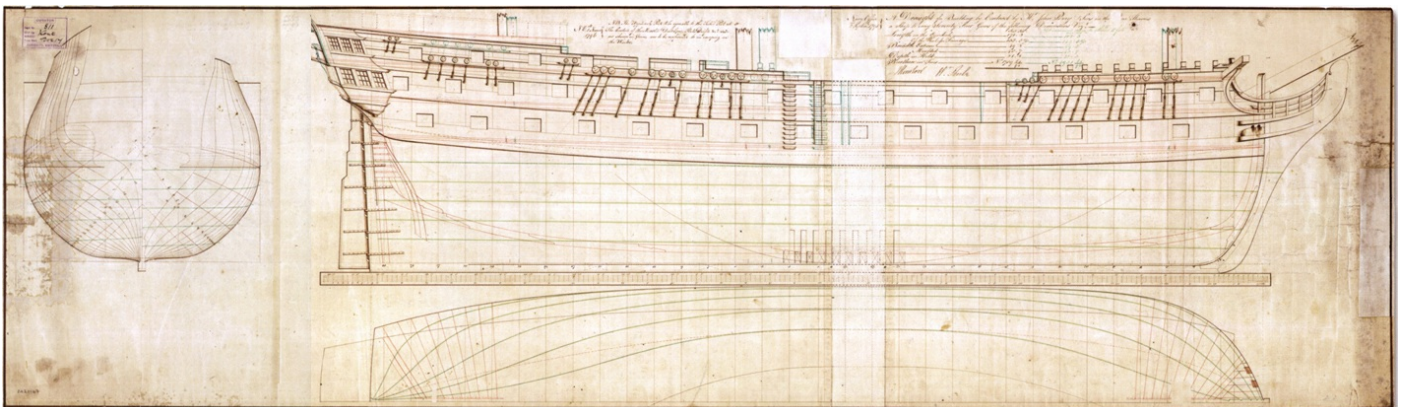
Undoubtedly the most extreme manifestation of the belief in the value of length is the case of the 98-gun *Prince*. Most of the Second Rates were dismal sailers, but after five year's service this ship was universally reckoned the worst, so in 1796 the ship was docked, cut in half and a new 17ft section added. The whole process kept a major warship out of action for six months and the bill exceeded half the original building cost of the ship – and in terms of speed the result was a bitter disappointment. In April 1797 Sir Roger Curtis reported on his rebuilt flagship: 'I am very sorry I have it not in my power to ... communicate ... any favourable report respecting the sailing of the *Prince*, as upon the whole she does not appear to go any better, nor indeed so well as might have been reasonably expected from her coming to sea newly coppered and fresh stored, [than] before she was lengthened.' However, he still felt the effort had been worthwhile since the *Prince* was a better fighting ship in a number of significant respects: her lower gunports were now 6 inches further from the waterline; she stowed 25 per cent more water, greatly increasing endurance: stability, handling and seaworthiness had improved; and, crucially, the ship was more weatherly. The Admiralty felt sufficiently justified to order one Second Rate then building (*Ocean*) to be enlarged to the length of the *Prince*.



A perfect demonstration of why speed seemed so important in the 1790s: *Unicorn* had to chase the French frigate *Tribune* for 210 miles, including a ten-hour running battle, before she was able to get alongside her reluctant enemy on 8 June 1796. Apart from one attempt by the French frigate to drop astern of *Unicorn*, the ensuing 35-minute fire-fight was devoid of any manoeuvring before *Tribune* struck her flag. The 18pdr-armed *Unicorn* was more powerful than her 12pdr opponent, but *Tribune* was far larger and more heavily manned. Nevertheless, there was not a single casualty on the British ship, which underlines the prevailing Royal Navy opinion that the only tactical problem was catching the enemy. This dramatic aquatint by Nicholas Pocock shows the climax of the engagement after dark, with both ships carrying every stitch of canvas in dying evening winds – fighting under so much sail would have been regarded as excessively risky in earlier wars.

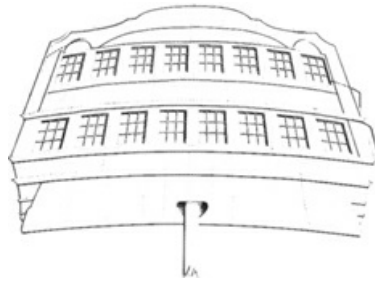
If anything, the experience of the sea war against Revolutionary France seemed to justify this concern with speed, as the overriding tactical problem became one of bringing a reluctant enemy to battle. In the circumstances an emphasis on chasing attributes was natural, but gradually it came to be recognised that longer hulls also suffered some distinct disadvantages. For frigates this was largely a matter of manoeuvrability in action, since the shorter British frigates had traditionally been able to tack or wear more quickly and in less sea room than their opponents. There were battles where this played a part, but in this era frigate engagements were usually chase actions settled by running alongside and pounding the enemy with close-range gunnery, so speed and firepower were still paramount.

For battleships longer hulls presented a different order of problem, particularly for two-deckers, where the longitudinal girder strength of the hull was nearing the limit of what was possible with traditional shipbuilding technology. For British-built ships months at sea in all weathers wracked and stressed the fabric, and the longer the ship the worse the danger; but for ex-French ships, with long, shallow and more lightly built hulls, British service was destructive. French-built ships always required more maintenance than British-built equivalents, but as the Royal Navy built ships closer to French dimensions – while demanding they spent ever more time at sea – structural decay spread like a cancer through the fleet. The dockyards struggled to find an effective and economic solution, which finally appeared in the form of Seppings diagonal system. After the war this had far-reaching consequences for the naval architecture of wooden ships – perhaps its greatest significance to naval history – but it should not be forgotten that it was inspired by a particular set of circumstances: an urgent need to preserve the strength of existing, time-worn ships and keep them seaworthy.



While length may have endowed a hull with greater potential speed, it also imposed increased strains on the structure. All wooden ships were inclined to flex in a seaway, which destroyed the watertight integrity of the hull, and promoted rot and decay. Long, low hulls in particular lacked girder strength, and French ships were notorious for suffering these problems. The 80-gun ships, like the *Canopus* shown here, were possibly the most extreme examples, but the ubiquity of the problem throughout the Navy inspired the search for innovative ways to repair and strengthen old and weak ships. The answer was the diagonal bracing system perfected by Sir Robert Seppings in the final years of the long wars with France. Not surprisingly, *Canopus* was one of the first to benefit from

THE 80-GUN SHIP

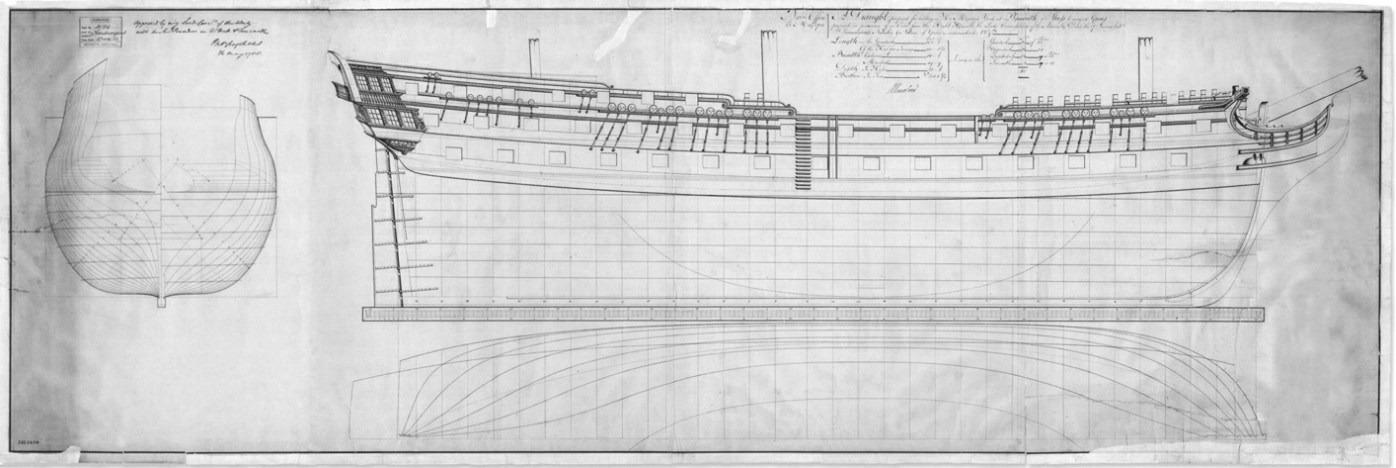


In the eighteenth century the two-decked 80-gun ship was a decidedly foreign type, the first to serve in the Royal Navy being the French *Foudroyant*, captured in 1758, followed by the ex-Spanish *Gibraltar* taken in 1780. Being longer, the 80 carried more guns per deck than the standard 74, and the upper deck calibre was usually heavier to boot; in fact, as pointed out above, the French 80 carried more broadside weight of metal than a British 98. Furthermore, their great waterline length tended to make them fast, and with only two gundecks they were noticeably more weatherly than towering Second Rates. Yet despite these obvious advantages only two British-built 80s saw service in the wars of 1793–1815.

Three reasons may be advanced for this apparently illogical state of affairs. The most important is the lack of a clear role – at least in the first decade of the war – for what were relatively expensive ships; they had neither the accommodation most admirals required in a flagship, nor did they have the presence of a three-decker in battle, so the British showed a decided preference for 98s. The second is more subtle, and largely invisible to historians like William James, who was an outspoken advocate of 80-gun two-deckers: the extreme length of these ships made them very vulnerable to hogging, the structural distortion caused by the less buoyant ends drooping in relation to the midships body. The British had first-hand experience of this, having tried to build two-decker 80s as early as the 1690s, but this very structural weakness caused them to be rapidly rebuilt with three decks; the resulting ‘three-decker 80s’ were probably the most heavily criticised warship class of their day, an unhappy experience that was seared into the corporate memory of the Navy’s administrators. Before the diagonal construction methods of Sir Robert Seppings were perfected in the post-war years, it was difficult to build a two-decked hull of more than about 180ft with sufficient girder strength for British requirements. In general, French and Spanish ships made relatively short sorties, but when 80s were exposed to the rigours of almost continuous sea-time in the Royal Navy they became time-consuming and costly to maintain. The final reason for so little shipbuilding effort being expended on the 80 must be the significant numbers taken from the enemy: all but two of the ships listed in [Table 5](#) were prizes.

With so few ships in service it is difficult to generalise about their employment, but like all first-class ships there was a tendency to allocate them to the Channel or Mediterranean Fleets, the majority being kept in home waters. Here some of the more active flag officers began to discover the advantages of the 80, particularly for winter cruising or inshore blockade duties. As a vice-admiral, Cornwallis had the 80-gun *Caesar* in the winter of 1794, before hoisting his flag in the First Rate *Royal Sovereign*, and in the following years *Sans Pareil* wore the flag of Rear-Admiral Seymour, despite the presence of a number of 98s acting as private ships. *Foudroyant* was chosen by Lord Keith as flagship of the Mediterranean Fleet after the *Queen Charlotte* was destroyed by fire in 1800, but the reverse of the medal was represented by the *Gibraltar*, which was under-armed, a very dull sailer, and consequently nobody’s favourite as a flagship.

However, in the 1790s while the French and Spanish still possessed significant fleets-in-being, there was a tendency to assign a three-decker to most detached squadrons – Cornwallis’s *Retreat* would have been unthinkable without the awesome bulk of the *Royal Sovereign* to deter the numerically superior French force. The close blockade instigated by St Vincent demanded the utmost in sailing qualities from the ships employed in the inshore squadrons, and so the habit arose of leading such detachments from 80s rather than leewardly three-deckers.⁸ Saumarez commanded such a squadron off Brest from the *Caesar* in the first half of 1801 and kept the same ship when transferred to the Cadiz station; thus she was his flagship and fought with distinction in the actions of Algeiras and the Gut of Gibraltar later in the year. As the strategy of blockade became effective, and especially after the heavy French and Spanish losses of 1805, enemy battlefleet activity was largely reduced to the escape of relatively small divisions. The subsequent British pursuit was usually entrusted to flying squadrons, but initially these were hampered by the lumbering 98s chosen as flagships – in January 1801, for example, Sir Robert Calder’s *Prince of Wales*, 98 led a select detachment of Channel Fleet two-deckers in search of Ganteaume’s squadron, which contained no three-deckers. There was always a problem with combining ships of substantially different sailing qualities, and Lieutenant Hoffman, when serving in the *Minotaur* found himself sandwiched between the laggardly *Prince* ahead and the *Spartiate*, a French prize which ‘sailed like a witch’, astern; *Minotaur* constantly threatened to collide with *Prince* while simultaneously threatened with being run down by *Spartiate*.



A DRAUGHT PROPOSED FOR BUILDING IN HIS MAJESTY'S YARD AT PLYMOUTH, A SHIP TO CARRY 80 GUNS. NAVY OFFICE, 15TH MAY 1788.

Only the second British-designed 80-gun two-decker (after *Caesar* of 1783), it is perhaps significant that *Foudroyant* was ordered almost simultaneously with the enlarged 98s of the *Dreadnought* class as if by way of comparison. Although popular in France and Spain, the 80 in Britain seems to have been regarded as a (perhaps inferior) rival to the Second Rate, and there was a clear reluctance to introduce them in numbers. There was little to choose between the two types in terms of tonnage, and with a 24pdr upper battery the 80 had some advantages in firepower but the small three-decker was regarded as a better proposition in battle. *Foudroyant* was Nelson's flagship in 1799–1800, when she was involved in the capture of both *Généreux* and *Guillaume Tell*, the refugees from the battle of the Nile. (J2514)

By 1806, when Willaumez's and Leissègues's divisions slipped out of Brest, the pursuing forces of Sir John Borlase Warren and Sir Richard Strachan were both commanded from 80s (*Foudroyant* and *Caesar* respectively), although they still each had a 98 attached because one French squadron was known to include a three-decker. Ironically, Leissègues's force – including the 120-gun *Impérial* – was tracked down and destroyed off San Domingo by Vice-Admiral Duckworth with a squadron that contained nothing larger than the 80-gun *Canopus*. There was less success against Willaumez, and both Warren and Strachan eventually abandoned their three-deckers. As William James dryly concluded, 'It had by this time been found that a 98-gun ship was no acquisition to a flying squadron.'⁹

Thereafter, detached squadrons were often commanded from 80-gun ships, particularly where fast-sailing might be a significant qualification. Sir Richard Strachan's *Caesar* had led the force that rounded up the Trafalgar stragglers in 1805 and was later the flagship of Rear-Admiral Stopford's division off Rochefort. *Canopus* was another popular ship, in succession flying the flags of Rear-Admirals Campbell, Louis and Martin between 1803 and 1809. *Foudroyant*, after a spell as Rear-Admiral Graves' flagship in the Channel, led Rear-Admiral de Courcy's South America squadron in 1809. The 80 was also employed on occasion as the flagship of a secondary station, like the *Sans Pareil* at Jamaica in 1801.

In this respect, the 80 finally developed a role, but it was not distinctive enough – large 74s often functioned as flagships on similar missions – to warrant large-scale construction. The first British-designed 80 since 1788 was ordered in 1809 (and that from a desire to test the hull form of the captured Danish *Christian VII*), but only one other was laid down before the end of the war, and neither saw service before 1815. Nevertheless, with the coming of Seppings's diagonal construction system longer ships were suddenly feasible, and post-war two-deckers grew to 84 and even 90 guns.



THIS painting by Thomas Luny shows the final stage of the capture of the French 80-gun *Guillaume Tell* by HMS *Foudroyant*, also 80 guns, off Malta on 30 March 1800. The other British ships are the 64-gun *Lion* (to the right) and the frigate *Penelope*, whose skilful harassing attacks had delayed the big French two-decker long enough for the others to get into action. (BHC4160)

TABLE 5 Numbers of 80-gun Ships

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1793	0	1
1796	5	0
1799	6	1
1801	5	3
1805	4	2
1808	7	0
1811	6	1
1814	1	4

TABLE 6 Typical 80-gun Ships

<i>Ship</i>	<i>Navy built for</i>	<i>Date launch</i>	<i>Length ft–ins</i>	<i>Breadth ft–ins</i>	<i>Burthen tons</i>	<i>Armament</i>
<i>Gibraltar</i>	Spanish	1749	178–10	52–11	2157	30 x 24; 32 x 18; 12 x 8; 6 x 8
<i>Canopus</i>	French	1797	193–10	51–6	2258	30 x 36; 32 x 24; 18 x 12; 4 x 12
<i>Foudroyant</i>	British	1798	184–0	50–6	2054	30 x 32; 32 x 24; 14 x 12; 4 x 12
<i>Christian VII</i>	Danish	1803	187–2	50–10	2128	30 x 32; 32 x 18; 2 x 18 + 12 x 32 carr; 4 x 12 carr

NOTE: Armament is given number of guns × calibre in pounds in the order lower; upper gundecks; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.



A CONTEMPORARY model at 1/48th scale of a Common Class 74 of about 1790, possibly made for demonstration purposes as the hull is framed and timbered in exact imitation of full-size practice, including wales planked in 'anchor-stock' and 'top and butt' fashion. (F4196-2)

THE 74-GUN SHIP



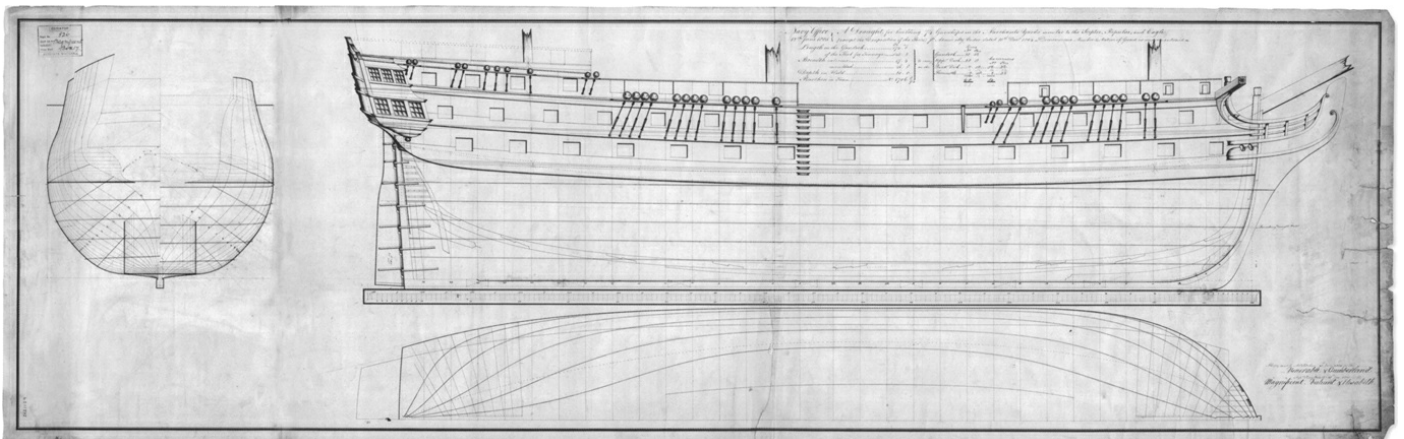
Since the beginning of the eighteenth century the standard line of battle ship in every major navy had been a two-decked Third Rate of around 70 guns. By about 1750 the number of guns was increasingly set at 74, a number which has no particular logic but which often came about by increasing the length of the standard 70 and adding two extra ports on each gundeck to make twenty-eight per broadside, the armament of the upperworks remaining at eighteen guns. France and Spain made the running in the introduction of large two-deckers while the British preferred to persevere with three-decker 80s. This latter type has been much reviled by historians – indeed, it had many critics in its own day – but it offered the traditionally attractive concentration of firepower in a small hull, albeit at the cost of miserable sailing qualities. The three-decker 80s were finally swept away in the middle of the century by a reforming administration under Anson, which needed far more seaworthy ships for the new aggressive policy of close blockade. Thus in the Royal Navy it is arguable whether what were initially called ‘two and a half deck’ ships were derived from conceptually cut-down 80s or expanded 70s.

The first British 74s were mainly the work of Sir Thomas Slade, the designer of the *Victory*, Anson’s favoured naval architect, and one of the very best ship designers of the age of sail. Introduced from about 1755 onwards, 74-gun ships quickly fell into a pattern of about 168ft on the gundeck with twenty-eight 32pdrs on the lower and the same number of 18s on the upper gundeck, with 9pdrs on the forecastle and quarterdeck. Slade and his successors experimented with the hull forms but the basic dimensions remained in use until the end of the American Revolutionary War, and occasionally even later. Generally known as the ‘Common Class’, these small 74s still formed the backbone of the battlefleet in 1793, although numbers declined steadily in the 1790s before staging a recovery after Trafalgar. (See [Table 7](#))

The reasons for the reversing trend were twofold: firstly, most ships built and captured in the 1790s were of the new ‘Large Class’, whose increase tended to offset the decline in ‘Common’ 74s; but after 1800 there was a return to more moderate dimensions for new construction (particularly the infamous ‘Forty Thieves’ of the Surveyors’ class), and the widening of the theatre of war required the commissioning of every battleship that would float.¹⁰

The ‘Large Class’ could trace its ancestry to the *Valiant* and *Triumph* of 1757, based on the lines of the French *Invincible* captured in 1747, which introduced 24pdrs on the upper deck. Compared with around 1650 tons for the standard 74, they were 1800 tons and were seen as unnecessarily large and not followed-up by the conservative administrations of the American War period, although it is only fair to point out that numbers rather than individual quality were even more important in this conflict than was the case earlier or later in the century.

The relative success of the French navy in the American Revolutionary struggle inspired much admiration in the British service, and one important factor was considered to be the size and quality of French ships. A few large 74s were laid down after the war, concentrating initially on increased length for greater speed, and the process gathered pace under Spencer’s forward-looking Admiralty in the 1790s. Some of these ships returned to 24pdr secondary batteries, and with French prizes being regularly added to this class, numbers grew quickly. (See [Table 8](#).)



A DRAUGHT FOR BUILDING 74 GUNSHIPS IN THE MERCHANT YARDS SIMILAR TO THE *SCEPTRE*, *REPULSE*, AND *EAGLE* (EXCEPT THE DISPOSITION OF THE PORTS) PR ADMIRALTY ORDER DATED 18TH DEC. 1804. NAVY OFFICE 12TH JUNE 1805.

After a decade of building big ships in each class, in 1800 the Admiralty reverted to more modest dimensions for a new class of 74s, originally intended for service in the North Sea, where confined waters and a weak enemy favoured smaller ships. Perhaps it is significant that the first three

carried names that had previously been borne by 64-gun ships, so these 'economy' 74s may have been seen as replacements for this once numerous but now obsolescent type. However, with a serious threat of invasion and a fleet stretched to its limit, the revival of the design in January 1805 was driven by the need for the maximum number of additions to the battle line, so they were seen as standard 74s and received names accordingly. This draught was used by Perry, Wells & Green of Blackwall for *Magnificent*, *Valiant* and *Elizabeth*. (J2921)

These bigger ships, of 1850–1900 tons or more, have been associated with the distant blockade policy of Howe and Bridport, which presumed that the main fleet would spend much of its time in sheltered home waters and not exposed to damage or loss off a hostile coast. They would chase the French once an inshore squadron of observation had reported any sortie, and for this large – which usually meant fast – ships were necessary. If this were the case, it would reveal very muddled thinking on the part of both Admiralty and Admirals, because the strategic mobility of the fleet – its ability to get into a position to encounter the enemy – would depend on the speed of the slowest ship, in all probability one of the three-decker flagships that could not be left behind. The inspiration for the larger ships is far more likely to have been a general desire to catch up with foreign developments, since both the Chatham and Spencer Admiralties invested heavily in frigates and sloops of significantly greater size as well as bigger battleships.

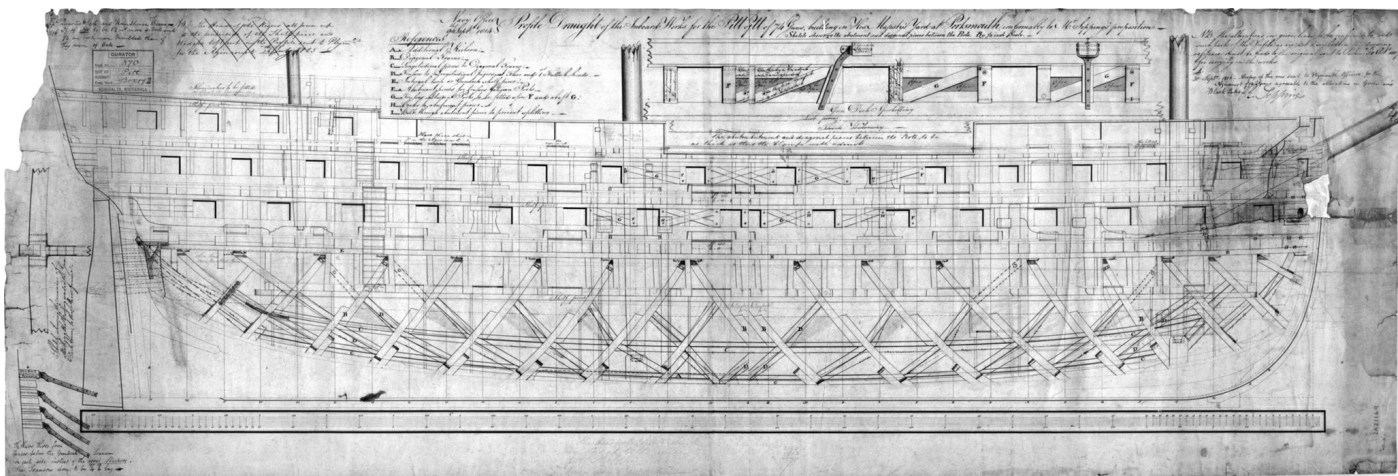
In fact, the large 74 did possess a tactical advantage in that it could act as a fast division of the battlefleet. Not unlike the battlecruiser force in the First World War, these ships could be detached either to cut off the rear of a retreating enemy line or to delay the main force until the rest of the British fleet could come up. The separate division was merely defined as 'fast-sailing two-deckers', and could include the better Common Class 74s, but the Large Class provided the majority of such ships – certainly out of all proportion to their numbers.¹¹ When combined with 80s the large 74s made ideal flying squadrons. Calder's detachment in pursuit of Ganteaume in 1801 was an early, if flawed, example since he still had a three-decker flagship, but Duckworth's victory at San Domingo in 1806 was largely the work of big two-deckers, assisted by one Common 74 and the famously fast-sailing 64 *Agamemnon* (and she was actually a drag on the squadron).

The qualities of the large 74 were first demonstrated by the *Mars* in April 1798. Having been chosen for her superiority under sail as lookout for Bridport's fleet, she chased, overtook and defeated the French *Hercule* of similar force after a fiercely fought engagement, proving more than a match for the French ship in both sailing and fighting. As the tactics of blockade became more sophisticated, the Large Class was found increasingly useful on the more demanding stations, especially inshore. They tended to be powerful and weatherly under sail so could be risked as a link between the frigates and the main fleet, and eventually came to comprise whole squadrons. Off Rochefort in 1808, for example, Sir Richard Strachan commanded a homogeneous force of seven large two-deckers from the *Caesar*, 80.¹² To blockade Rochefort was particularly demanding, and the Large Class took a major share of this duty. A spectacular proof of their value came in September 1806 when Sir Samuel Hood in the *Centaur* led the Rochefort squadron, which included three other large 74s, in the pursuit and capture of four 40-gun frigates; in heavy weather even frigates could be overhauled by Large Class 74s.

These ships were plum commands, so generally fell to the lot of senior captains. Therefore, they often became senior officers' ships when detached, and in due course became flagships, sometimes even in preference to 80s. Borlase Warren chose the *Renown*¹³ to carry his flag rather than the *Gibraltar* in 1801, and *Kent* was Sir Richard Bickerton's flagship for the Egypt expedition in the same year. Like all first-class ships, there was a strong tendency to keep them at home or in the Mediterranean, but it is significant that with his well-known prejudice against large ships Jervis had neither 80s nor Large Class 74s in his fleet in 1797. A few large ships served in the West Indies, but they were not to be found further afield before the renewal of war in 1803, nor with the odd exception in the North Sea.



THE quality of ship design is only one contributor – and not even the most important one – to the success of navies in the age of sail. Political support, and therefore secure and continuous funding, is probably the most significant, but closely followed by the level of training and experience of the officer corps and their crews. A high order of seamanship was key to obtaining every benefit of seapower, and that could only be achieved by sea-time and practice. In this respect the Royal Navy exceeded all its opponents, giving it the confidence to apply the most aggressive tactics, like this close blockade of Cadiz in August 1797. The Advance Squadron comprises Common Class 74s: from left, *Bellerophon*, *Orion* (taking up her position at the left of the line), *Theseus* (flying the flag of Rear Admiral Nelson), *Colossus* and *Irresistible*. (PY9505)



PROFILE DRAUGHT OF THE INBOARD WORKS FOR THE *PITT* OF 74 GUNS, BUILDING IN HIS MAJESTY'S YARD AT PORTSMOUTH, CONFORMABLY TO MR SEPPINGS' PROPOSITIONS. NAVY OFFICE, 9TH SEPT 1814.

An ageing battlefleet, which included many ships built in the 1770s and earlier, led the Admiralty in 1806 to propose a new standard 'minimum' 74-gun design that could be built in quantity. Designed by a committee, the 'Surveyors of the Navy' class eventually reached forty ships, some of which turned out to be built too quickly and with insufficient care by some merchant yards, leading them to be dubbed 'The Forty Thieves'. They were particularly afflicted by timber shortages, and many experimental fastening schemes were tested on them, before the adoption of Seppings' diagonal plan in the last years of the war. Seppings originally worked at Chatham and draughts like this were sent to the other yards to familiarise

them with his methods of cross-bracing and beam fastening. The main drawing is surrounded by details of individual aspects of the 'trussed frame' system. The class was regarded as a retrograde step by those used to the Large Class, but their sailing qualities were reasonable – *Medway*, for instance, had little trouble running down the US Navy brig *Syren* in 1814. (J2722)

TABLE 7 Numbers of 74-gun Ships, Common Class

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1793	18	40
1796	48	8
1799	41	8
1801	39	11
1805	30	13
1808	47	4
1811	56	6
1814	64	3

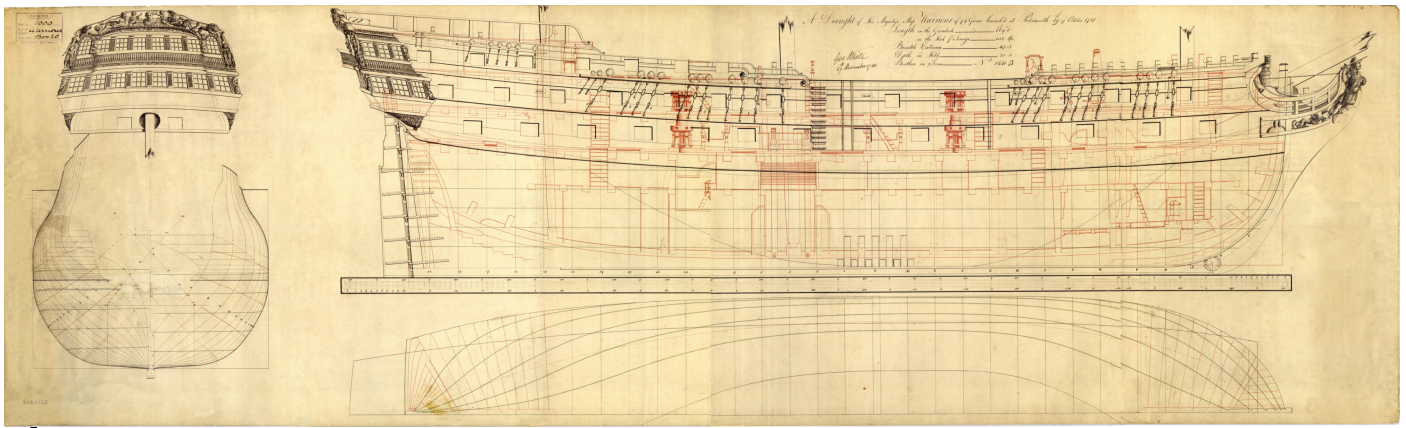
TABLE 8 Numbers of 74-gun Ships, Large Class

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1793	1	2
1796	6	2
1799	17	3
1801	17	3
1805	19	5
1808	29	1
1811	24	4
1814	21	9

TABLE 9 Typical 74-gun Ships

<i>Ship</i>	<i>Navy built for</i>	<i>Date launch</i>	<i>Length ft-ins</i>	<i>Breadth ft-ins</i>	<i>Burthen tons</i>	<i>Armament</i>
<i>San Damaso</i>	Spanish	1775	175-2	48-9	1811	28 x 32; 30 x 18; 8 x 9; 6 x 9
<i>Warrior</i>	British	1781	169-0	46-11	1621	28 x 32; 28 x 18; 14 x 9; 4 x 9
<i>Rainbo de Portugal</i>	Portuguese	1791	181-4	48-9	1897	28 x 32; 30 x 18; 12 x 9; 4 x 9
<i>Mars</i>	British	1794	176-0	49-0	1842	28 x 32; 30 x 24; 12 x 9; 4 x 9
<i>Kent</i>	British	1798	184-2	49-7	1963	28 x 32; 28 x 24; 14 x 9; 4 x 9
<i>Spartiate</i>	French	1797	182-7	49-4	1949	28 x 36; 30 x 18; 16 x 8 + 4 x 36 carr
<i>Norge</i>	Danish	1799	183-7	49-4	1960	28 x 36; 32 x 18; 4 x 12 + 10 x 32 carr; 2 x 12 + 2 x 32 carr
<i>Sceptre</i>	British	1802	174-0	47-4	1706	28 x 32; 28 x 18; 2 x 18 + 12 x 32 carr; 2 x 18 + 2 x 32 carr
<i>Pitt</i>	British	1816	176-0	47-6	1741	28 x 32; 28 x 18; 4 x 12 + 10 x 32 carr; 2 x 12 + 2 x 32 carr

NOTE: Armament is given number of guns × calibre in pounds in the order – lower; upper gundecks; quarterdeck; forecstle; + indicates a mixed armament of long guns, quoted first, and carronades.



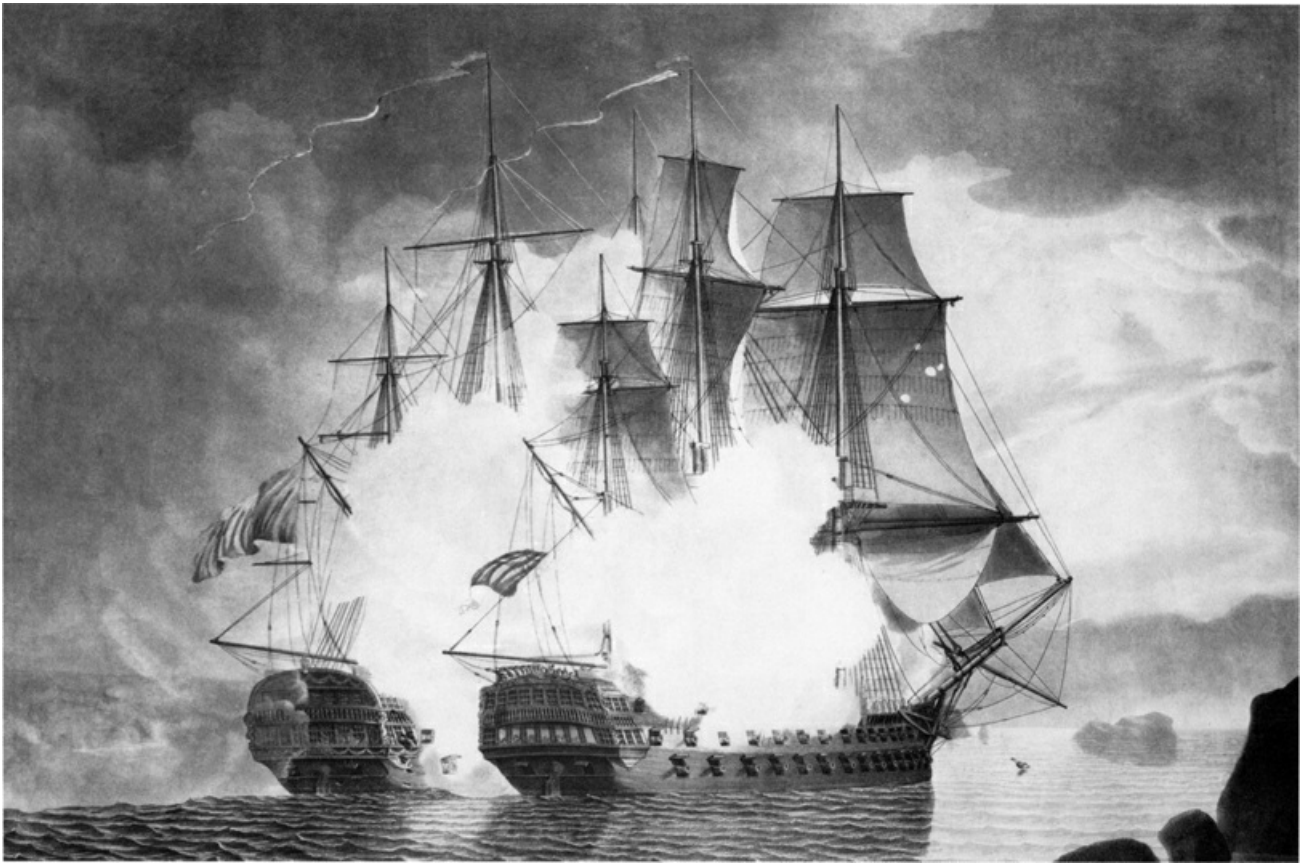
A DRAUGHT OF HIS MAJESTY'S SHIP *WARRIOR* OF 74 GUNS LAUNCH'D AT PORTSMOUTH 19TH OF OCTOBER 1781.

This beautifully detailed 'as fitted' draught can represent the large numbers of 'Common Class' 74-gun ships built between the late 1750s and the early years of the nineteenth century – the ship type, beyond all others, on which the Royal Navy's success rested. This particular design, by Sir John Williams, was not entirely successful, lacking sufficient stiffness under sail, and the class was curtailed after four ships. Nevertheless, *Warrior* enjoyed a long and active career, serving in virtually every theatre except the East Indies and was in commission right up to the end of the war; she survived, reduced to harbour duties, until 1857. (J3261)

Despite their obvious advantages, large ships fell from favour towards the end of the 1790s. The victories at St Vincent, Camperdown and the Nile were almost exclusively the work of Common Class 74s, and resources – in both the general financial sense and in the specific area of shipbuilding capacity – were stretched very thin. In this climate the big 74 did not look like good value, costing about 25 per cent more than a Common Class vessel, and making greater demands on scarce supplies of the largest 'grown' timber. Furthermore, doubts began to be expressed about the strength of the long-hulled two-deckers, especially when employed on near-continuous blockade duty.¹⁴ Even before St Vincent's retrenchment-minded administration took office in 1801, there had been a return to moderate dimensions (around 1700 tons, for ships nominally intended for North Sea duties), and a move away from small numbers of single ships or pairs towards once again building classes of substantial numbers to a single draught.

This process reached a climax with the 'Surveyors of the Navy' class, a collaborative venture between the three chief designers intended to produce what might be called a 'war emergency' standard battleship. It was as small as could be considered viable (at 1740 tons it rated as a Middling 74), with a flattened sheer to maximise gunport freeboard amidships, and was meant for construction in large numbers in merchant yards. Like all ships 'designed down to a limit', they could not stand comparison with larger and more expensive equivalents, and as such they quickly became the target of unfair criticism. The building programme was to reach forty ships, and some journalistic wag christened them 'The Forty Thieves', a sobriquet that was, unjustly, bequeathed to history.

Some ships of the class undoubtedly suffered problems, but more often constructional than design-related. To execute a programme of this size the Navy Board was forced to turn to many builders with little or no experience of large warships, and the Board clearly had difficulty overseeing construction in the depth required. Ships were certainly badly finished, and in a few well-publicised cases there was more than a suspicion of fraud, but many of the ships were also subjected to experiments with systems of fastening designed to alleviate the great shortage of natural 'grown' knees. Complaints of structural weakness were certainly exaggerated, and the vast majority of the class survived for decades after the end of the war. Under sail they were not outstanding, but they were not noticeably inadequate either; most importantly, they were available, and in large numbers, when they were needed.



SINGLE-SHIP actions between battleships were not common, but in April 1798 *Hercule* had the misfortune to encounter HMS *Mars*, one of the few Large Class 74s in the Royal Navy. The French ship was newly commissioned and attempting to break the blockade to join the Brest fleet but proved no match for the well worked-up British ship, although both were very similar in size and armament. Many of these relatively long French ships were found rather weak in structure, and *Hercule* was the subject of an experiment in lighter single-calibre armament. The Gover-pattern lightweight 24pdr (of about 33 cwt) was supplied for both gundecks, with two pairs as chase guns on the forecastle and a further fourteen 24pdr carronades. The concept anticipated post-war developments, although the gun itself was unsatisfactory, being incapable of safe double-shotted firing. (NEG8503)

THE 64-GUN SHIP



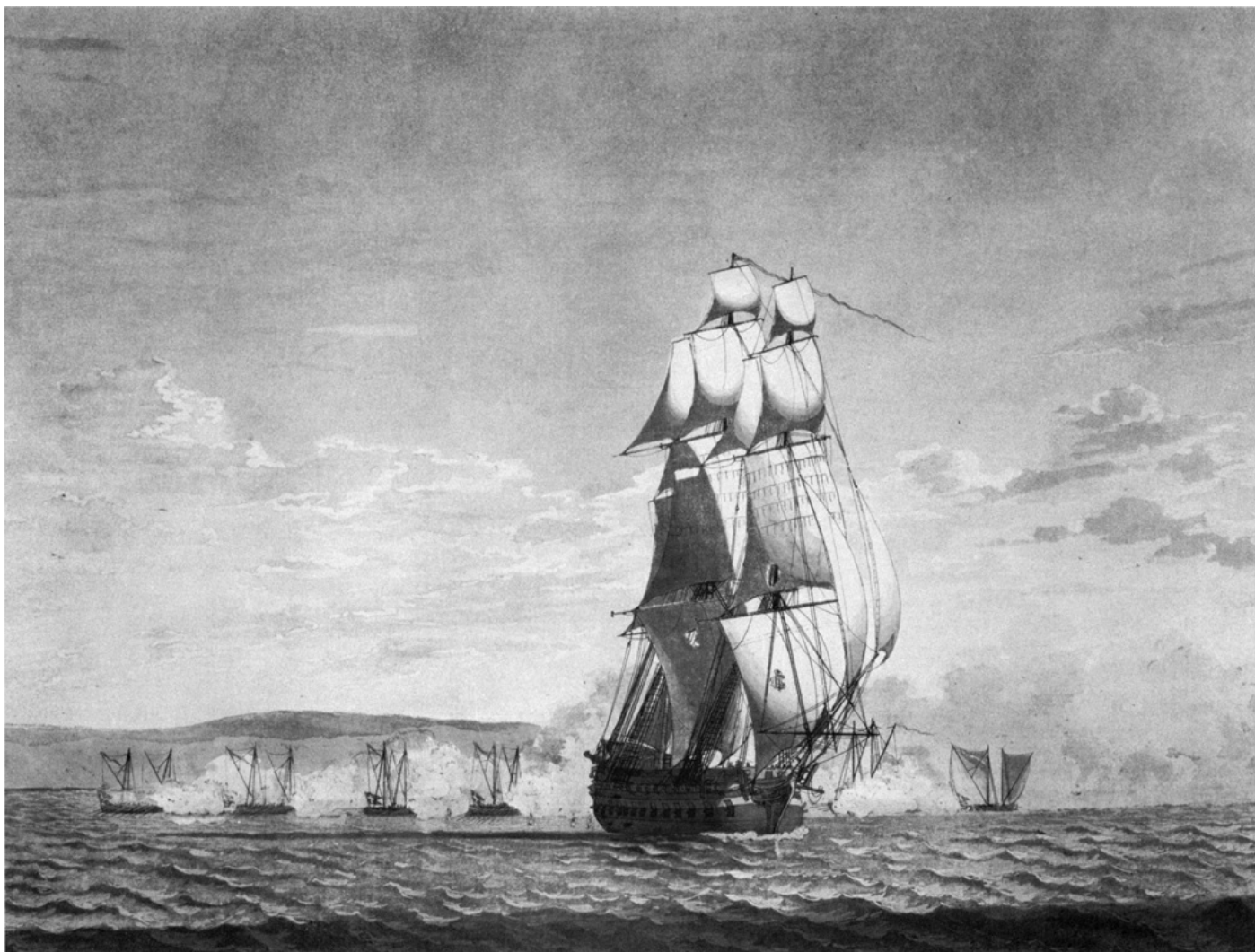
The 64 was an 'economy' battleship and by the mid-eighteenth century for major navies it was the smallest acceptable unit of the line of battle. The principal weakness of the type was the main battery of 24pdrs, whereas the rest of the line from the largest three-decker to the standard 74 were equipped with 32pdrs in the British fleet and 36pdrs in the French. This meant that any 64 would always be a weak link in the battle line and a source of concern to the admiral commanding. This had become recognised during the American Revolutionary War and neither Britain nor France built such ships thereafter.¹⁵ The type remained popular with second-rank navies, like those of the Baltic states and, especially, the Netherlands, and although France built no more of the type for her own navy she acquired others through the shipbuilding activities of her satellite states like Venice and the Netherlands. Therefore British 64s were often concentrated in the squadrons opposing those powers.

Because of a large building programme put in hand during the American War, there were still thirty 64s available in 1793. Natural attrition reduced the numbers gradually during the war, but many were captured – mainly from the Dutch, but three from Denmark and two originally built for the Knights of St John at Malta. But very few of these were acceptable cruisers, and those not hulked were usually reduced to duty as troopships or store vessels. However, such was the rapidly escalating commitments of British fleets that in 1796 five of the largest East Indiamen building on the Thames were purchased and converted into 64-gun ships. They had their ports rearranged to take twenty-six 24pdrs instead of the twenty-eight 18pdrs they were designed for, and unlike the 54/56-gun ships acquired in the previous year (see 'The 50-gun Ship' below), they had a proper quarterdeck and forecastle. They were longer in proportion than purpose-designed 64s, but nevertheless were deemed inadequate warships, being slow and unwieldy, thanks to their capacious mercantile hull form. They were derisively dubbed 'tea and sugar ships' in the fleet, and when blockading Toulon in 1803 Nelson complained that as ships of the line, '*Monmouth* and *Agincourt* ... were hardly to be reckoned'.¹⁶

Because of the weak broadside of the 64 there was a tendency to keep them out of the principal battlefleets if at all possible. Even in 1794 when all manner of battleships were in short supply, Lord Howe's Channel Fleet did not contain any 64s, and in the period of close blockade 64s were only very rarely assigned to such duties.¹⁷ As the country's front line of defence against invasion, the Channel Fleet clearly had first call on the best ships, but the 64 also disappeared from other strategically important squadrons. By the middle of 1797, for example, the Earl of St Vincent's Mediterranean Fleet had only one, and even when assigned to a particular command the 64 was often detached on convoy and other duties outside the battle line. At that time the greatest concentration of 64s was with Admiral Duncan's North Sea fleet – ten ships, or exactly half his nominal line of battle – followed by Rear-Admiral Rainier's East Indies command of six, with four 74s and four 50s. Both were expected to face Dutch rather than French opponents, Duncan off the coast of Holland itself, and Rainier concentrating on Dutch colonies at the Cape, in the Indian subcontinent and Indonesia. The Dutch navy's ships tended to be smaller, since it was essentially a trade protection force, and at the battle of Camperdown in October 1797 there were seven 64s on each side.

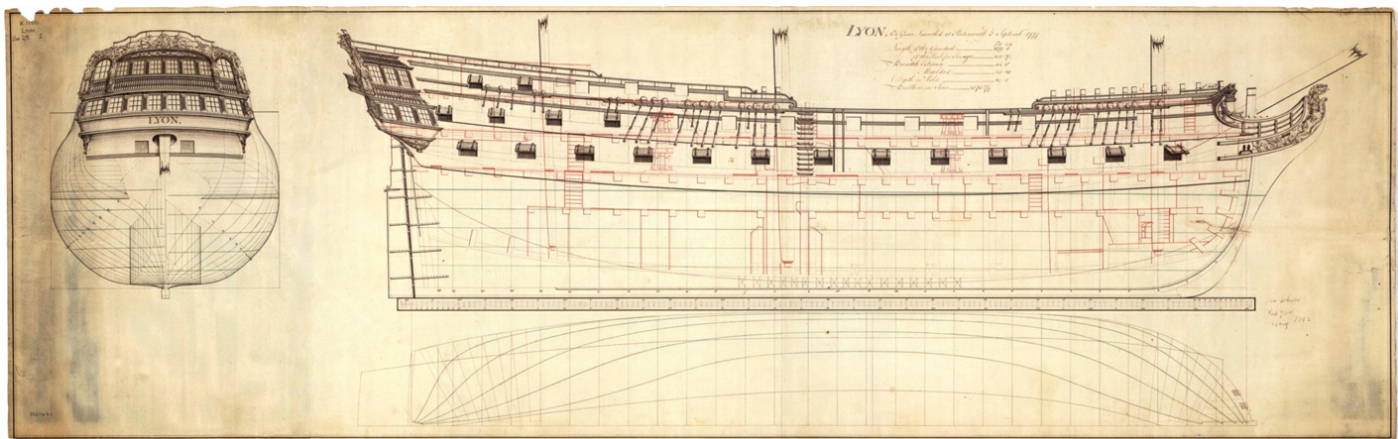
Probably the last campaign in which 64s took part in large numbers was Copenhagen in 1801: nine were originally allotted to Hyde Parker's command, although only three went into action with Nelson's division. Once again the choice of ship type was determined by the numbers of similar vessels in opposing fleets; both Russia – the planned next target after the Danish fleet had been dealt with – and Denmark herself favoured smaller ships, and the inshore emphasis of Baltic operations suggested that shallow-draught and handy ships would be at a premium.¹⁸ Three went back to Copenhagen with Gambier in 1807, and Saumarez was assigned two 64s when a permanent fleet was sent to the Baltic in the following year.

Although 64s were considered too weak for Channel service, where the enemy battle line was composed of 74s and larger, in other areas the 64-gun ship had its uses. They were often handier and more weatherly than larger battleships, and could be employed on detached duties where more powerful opposition was unlikely. From a distance they looked like any other two-decker so could be used to maintain a presence off lesser ports, to lead small colonial expeditions, and to provide cover for the more important convoys. *Agamemnon*, Nelson's professed 'favourite ship', was very active under his command, and in the Mediterranean demonstrated some of the variety of roles performed by 64s outside the battle line. That the 64 was superior to any frigate was proved beyond doubt by *Agamemnon*'s routing four of them (plus a brig) in October 1793; the 64's handiness was well illustrated by her hounding of the 80-gun *Ça Ira* in March 1795; and in the spring of 1796 under Nelson's broad pendant the ship led a detached squadron of one other 64, two frigates and two brigs to harass the coast around Genoa and blockade the port. Even after Nelson's promotion to larger ships, the *Agamemnon* remained a popular ship and, despite general reluctance to include 64s in the line of battle, contrived to fight at Copenhagen, Calder's Action in 1805, Trafalgar and Duckworth's action off San Domingo in 1806.



BY the latter stages of the Napoleonic Wars, 64-gun ships were consigned to lesser stations, and where they did see action it was usually outside the battle line. Those serving with Saumarez's Baltic Fleet, for example, were assigned trade protection duties, where it was hoped their relative bulk would deter the insistent attacks by Danish small forces on British convoys using the Sound, the main route in and out of the Baltic. The Danes refused to be cowed and if weather conditions were favourable they were perfectly prepared to take on even 64s with flotillas of rowing gunboats. As depicted here, in June 1808 off Kiøge Bay *Dictator* was attacked in light winds by six gunboats, which took station astern where the battleship could bring few guns to bear; after an hour the 64 was forced to retreat. A sister ship, the *Africa*, suffered a similar but worse ordeal a few months later when set upon by over thirty Danish gunboats and armed launches carrying a total of about 80 guns and 1600 men. The 64 was badly damaged in four hours of fighting, but it is instructive that the Danes could neither risk boarding the two-decker nor force the surrender of the ship. (PW4769)

The number of 64s in sea service began a steep decline in 1809–10, when the first of the large programme of 'Surveyors' class' 74s began to commission. Thereafter the remaining 64s took over from some 50s as distant-station flagships, saw more duty as convoy escorts, or were relegated to auxiliary status.



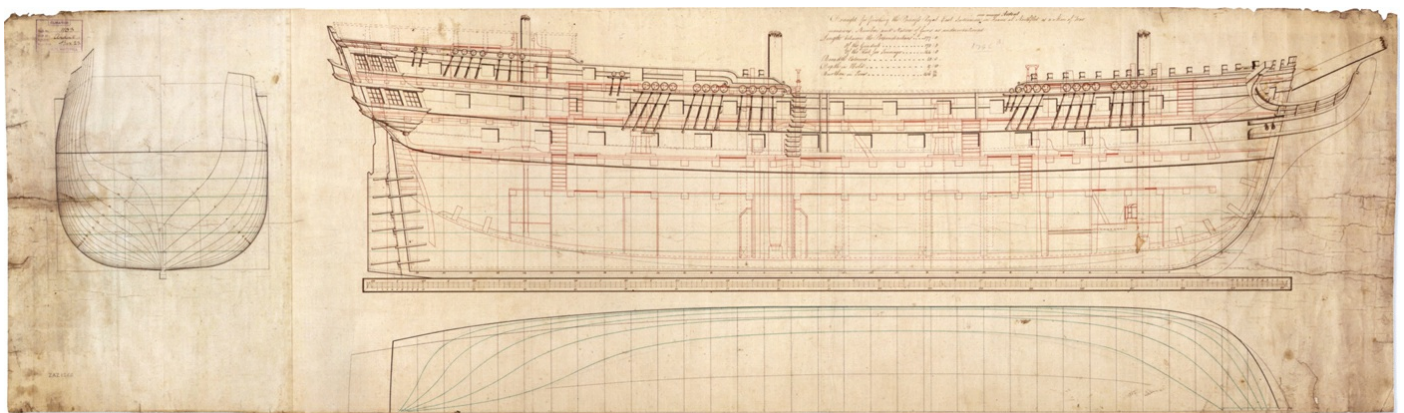
LION, 64 GUNS LAUNCH'D AT PORTSMOUTH 3RD SEPTEMBER 1781.

Typical of the last generation of 64s, *Lion* (as it was usually spelt) was one of many of these small two-deckers built to make up battlefleet numbers during the dangerous days of the American Revolutionary War when Britain faced all the major maritime powers alone. After active service during the American War, mostly in the West Indies, the ship was chosen to carry Lord Macartney's embassy to China in 1792. During

the following was the ship's career was typical of many 64s, serving in secondary theatres like the North Sea in the 1790s and for much of the period after 1801 in the East Indies. *Lion* was decommissioned in 1814 but survived as a hulk until 1837. (J3602)

TABLE 10 Numbers of 64-gun Ships

Year	No in Sea Service	No in Ordinary or Repairing
1793	2	28
1797	28	2
1799	22	4
1801	21	6
1804	8	12
1808	19	2
1810	11	1
1811	9	0
1814	1	0



A DRAUGHT FOR FINISHING THE *PRINCESS ROYAL* EAST INDIAMAN (NOW NAMED *ARDENT*) IN FRAME AT NORTHFLEET AS A MAN OF WAR [UNDATED, BUT 1796].

Desperate for more battleships in 1796 the Admiralty purchased five of the largest Indiamen building on the Thames and completed them as 64-gun ships. They were longer than purpose-designed warships – note the fourteen lower deck ports – but with the hull forms of merchantmen, were poor under sail. Nelson complained about the *Ardent*, and when her sisters *Agincourt* and *Monmouth* were under his command in the summer of 1803 he tried to have them sent home and their crews transferred to one three-decker: ‘in point of sailing, the *Britannia* in her last days [a noted sluggard], was a flyer compared to them. I verily believe, that a French Seventy-four, main-topsail to the mast would beat them in turning to windward ...’. They were also lightly built and *Ardent* suffered very heavy casualties at both the battle of Camperdown in 1797 and Copenhagen in 1801. The ship spent most of her active life in the North Sea squadron, but from 1808 was employed on secondary duties, as a guardship or troopship, until in 1813 she was hulked as a prison ship. (J3020)

TABLE 11 Typical 64 gun Ships

Ship	Navy built for	Date launch	Length ft–ins	Breadth ft–ins	Burthen tons	Armament
<i>Prince Frederick</i>	Dutch	1777	156–9	42–11	1267	24 x 24; 26 x 18; 10 x 9; 4 x 9
<i>Lion</i>	British	1777	159–0	44–6	1373	26 x 24; 26 x 18; 10 x 9; 2 x 9
<i>Rattvisan</i>	Swedish	1784	162–6	45–4	1437	26 x 24; 26 x 18; 6 x 6; 2 x 6
<i>Ardent</i>	British	1796	173–3	43–0	1416	26 x 24; 26 x 18; 10 x 9; 2 x 9
<i>Athenienne</i>	French*	1796	163–3	44–9	1411	26 x 24; 26 x 18; 2 x 9 + 8 x 24 carr; 2 x 9 + 4 x 24 carr

NOTE: Armament is given number of guns x calibre in pounds in the order – lower; upper gundecks; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.

* Originally built for the Knights of Malta, captured incomplete in 1798.

THE 50-GUN SHIP



At the beginning of the eighteenth century the 50-gun ship was the smallest unit of the battle line, but in all navies there was a drive towards greater individual firepower for battleships and, within squadrons, less disparity between the least and most powerful units. Therefore, as the century progressed the 50 seemed increasingly inappropriate for fleet engagements. From the 1760s France ceased to regard small two-deckers as part of the battlefleet, although such ships continued to hold a more important position among the second-rank powers like the Netherlands and the Baltic states.

The Royal Navy, concerned as always with fleet size, found it expedient to carry on building smaller ships, albeit after about 1750 in decreasing numbers. By 1793 most naval officers would have considered the 50-gun ship an obsolescent type, and indeed many of the earlier examples were converted to auxiliary roles, like troopship or storeship, where their relatively spacious gundecks would prove valuable. Nevertheless, for most of the Great French Wars a reasonably consistent number of them were always in Sea Service commission, although the total numbers dwindled steadily. Furthermore, three were under construction at the outbreak of war, and a new design was ordered as late as 1810. (See [Table 12](#).)

The fact is that the 50 had a distinct, if relatively minor, role for which there was a small but constant demand. Structurally, the 50 was the smallest rate regularly fitted with two levels of stern cabins, so were regarded as providing the bare minimum accommodation for a flag officer. The 50 was also reasonably economical of manpower, so found considerable favour in peacetime as flagships on distant or less important stations. In 1792 the flagships of the Mediterranean, North America, Newfoundland, Leeward Islands and Jamaica stations were all 50s, and another was the senior officer's ship on the Coast of Africa. During the conflict, out-of-the-way stations continued to be commanded from 50s: *Trusty* continued as flagship at Barbados, and *Europa* at Jamaica; *Leopard*, which had been flagship in the Red Sea in 1801, was performing the same role at Halifax during her notorious clash with the American frigate *Chesapeake* in 1807; Newfoundland (separate from the North America station based at Halifax) was commanded from the *Antelope* even after the outbreak of war with the United States in 1812.

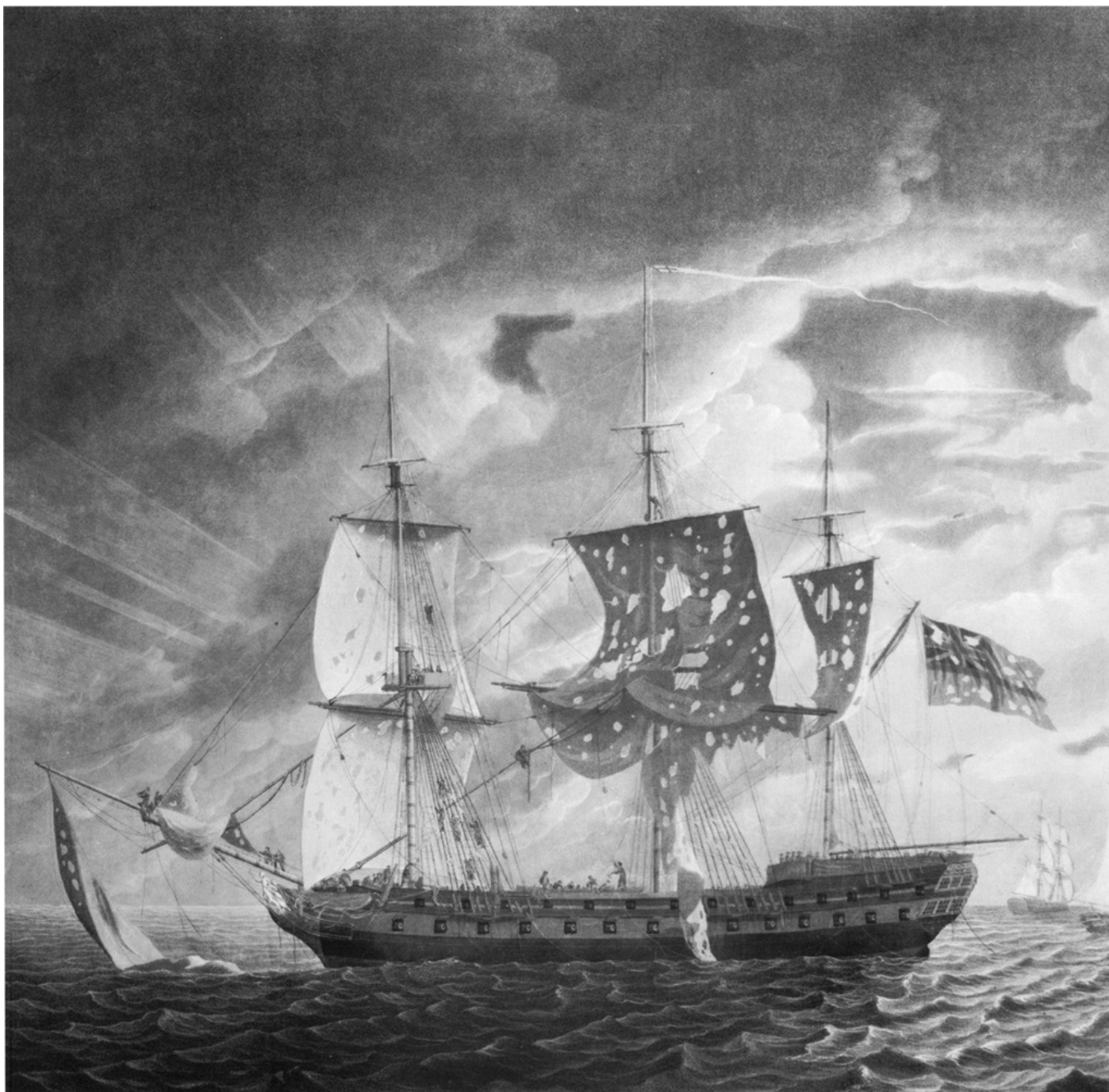
Even when not carrying a flag officer, there was a tendency to consign 50s to lesser stations, like the Cape and East Indies. Here they provided the local ship of force, but more often than not much of their workload was humdrum convoy protection duties, a defensive role for which their powerful 24pdr lower battery and lack of performance under sail would appear to suit them. However, they were not ideal cruisers: the lower deck battery was too near the water to be regarded as usable in all weathers, which put them at a real disadvantage when faced with a tenacious frigate. This was not just a theoretical difficulty, and at least two 50s suffered the mortification of being beaten off by inferior opponents. The *Jupiter* on the Cape station in 1799 was unable to use her lower deck guns against the 18pdr frigate *Preneuse*, which escaped with minor damage. More embarrassingly, the *Centurion* was out-fought by the 18pdr frigate *Cybèle* off Mauritius in 1794, although the British captain was cashiered for his pusillanimous performance in this engagement. On the other hand, under a different commander *Centurion* was to recover her pride in 1804 when on convoy duty in the Indian Ocean she fought off the French 74-gun *Marengo* and two frigates.

In circumstances where their inferior sailing did not intervene, British 50-gun ships did achieve some victories over big French frigates – *Leander's* over *Ville de Milan* in 1805, for example – but in truth there was not much difference in firepower. *Romney*, which captured the 18pdr *Sybilie* in 1794, fired 414 pounds to her opponent's 380 pounds.

Inevitably, the exigencies of war occasionally demanded that the 50 act as a 'battleship manqué', and despite commanders' reluctance to include them in the line of battle a number found themselves in fleet engagements. Perhaps the most famous instance was *Leander* at the Nile, although her anomalous position was emphasised by the sequel to the battle itself. Nelson had no frigates so he had to detach *Leander* with his dispatches, a mission which ended in her capture after an epic fight with the 74-gun *Généreux* – a classic demonstration of the drawbacks of the 50 as a cruising ship, since she could neither out-gun nor out-run her opponent.



THE apotheosis of the carronade: the *Glatton* routing a squadron of eight French ships on 15 July 1796. One of nine purchased East Indiamen rated as 54- or 56-gun ships, *Glatton* was armed at her captain's insistence entirely with carronades – 68pdrs and 32pdrs and not a single long gun at the time of the action – but the 68pdrs on the lower deck were later replaced by long 18s. Note the mercantile layout with a flush upper deck, little sign of gangways and an almost invisible topgallant forecastle. (NEG2440)



L **LEOPARD OF 50 GUNS [NO FURTHER ANNOTATION NOR DATE, BUT CLEARLY AS 'AS FITTED' SO C1790]**

Ten years elapsed between the order for this ship in 1775 and any work being started, and by then the construction had been transferred from Portsmouth to the shipbuilding 'backwater' of Sheerness (which concentrated on refitting); it was a further five years before the ship was completed. This is a good indication of the low priority usually accorded to these ships, often regarded as 'filler' jobs in the main dockyards, to keep the labour force employed during slack periods and use up timber too small for line of battle ships. *Leopard's* wartime service was typical of the class: bouts of anti-invasion duties in home waters alternating with carrying the flags of C-in-Cs on minor, distant stations like Halifax, the Cape or the Red Sea. However, the ship enjoyed a more exciting fictional career in the Jack Aubrey novels of Patrick O'Brian. (J3588)

The one home theatre in which the 50 saw much action was the North Sea. The Dutch navy was composed of ships that were smaller and less powerful on average than those of Britain, France or Spain, and the shadowing British North Sea squadron was a Cinderella fleet of older and smaller ships. *Leopard*, *Isis* and *Adamant* served with Admiral Duncan, and the last two fought at Camperdown, a battle in which the Dutch included four 50-gun ships in their line. *Isis* was later to fight at Copenhagen as well. One factor which made 50s particularly suited to the North Sea was their relatively shallow draught – about 17ft mean compared with about 22ft for a Common Class 74. This was particularly important among the shoals and swathways of the Dutch coast, allowing blockading small craft to have a ship of force much closer in for potential support. Not surprisingly, the 50-gun *Isis* was chosen by Vice-Admiral Mitchell as his flagship for the 1799 landings in Holland despite the presence of far more powerful ships in his squadron.

This suitability as a shallow-draught flagship was developed during the Great French Wars into the only entirely new role for the 50 of the period – as a kind of control craft for coastal forces on anti-invasion duties. Although the threat of a French descent was not new, the Napoleonic plan was novel in its scale and in its detail. Bonaparte's record meant that serious defensive measures were required against the putative invasion, but the assembly of a mosquito fleet of would-be landing craft in the Channel ports also suggested that vigorous counter-attacks might bear fruit. The 50-gun ship was involved with these anti-invasion measures in both the defensive and counter-offensive roles. Indeed, such was the demand for ships that some, like the *Trusty* which had been relegated to trooping duties, were returned to full establishment

as guardships, leading small flotillas in the narrow waters of the Thames Estuary, the Downs, and the East Coast. Others found more aggressive employment, perhaps none more so than *Antelope*, acting as the flagship of Sir Sydney Smith off the low countries in 1804. After the battlefleet itself, these squadrons were the second line of anti-invasion defence, and as flagships of these units the 50-gun ships probably made their most significant contribution to the wars of 1793–1815.

Building 50s was clearly not a high priority: the three ordered in 1790 spent between six and ten years on the stocks. These smaller rates were useful in the Dockyards to save wasting timbers that were either of too small a scantling for ships of the line or were off-cuts from larger components. Therefore, it is likely that work went on slowly until a particular need was felt for a new 50-gun ship, and it is perhaps significant that two were launched in the wake of the 1801 invasion scare. However, that there was an enduring demand for the 50 is demonstrated by the entirely new design ordered in 1810 to the lines of the Danish prize *Christian VII*, but not radically different in layout and firepower from ships built thirty years earlier. Four ships were laid down, although one, the *Isis*, was completed as a large frigate.

During the wars a few Dutch 50s were captured, but none saw any cruising service. There was, however, one other source of Fourth Rate two-deckers and that was the Honourable East India Company. In 1795 nine large East Indiamen were purchased in various stages of completion in a desperate attempt to increase the size of the fleet in response to a sudden widening of the conflict. They were armed with twenty-eight 18pdrs and twenty-six or twenty-eight 32pdr carronades, rating as 54- or 56-gun ships accordingly. Structurally they were un-naval in their two flush decks with virtually no superstructure – only a tiny topgallant forecastle platform and a quarterdeck that was no more than a roof for the great cabin. They were clearly stopgap measures and as soon as the crisis seemed less pressing four were converted to storeships or transports. The remainder were consigned to minor stations and were mostly utilised for colonial expeditions: *Madras* took part in the 1796 attack on Martinique and *Malabar* was lost after successfully leading a squadron against Dutch possessions in the Leeward Islands; *Abergavenny* was a virtually stationary flagship at Port Royal, Jamaica between 1797 and 1798.

One exception in both armament and activity was the *Glutton*, which was fitted out to the specification of her carronade-crazy captain, Henry Trollope. During the American War his 44-gun *Rainbow* had been fitted with an all-carronade armament, which had raised the broadside weight of metal from 318 pounds to 1238 pounds; so armed she had stunned the French 18pdr frigate *Hébé* into surrendering without resistance. Trollope went one stage further with the *Glutton*, which mounted twenty-eight 68pdrs on the lower deck on fixed slides and twenty-eight 42pdrs (rapidly replaced by 32pdrs) on the upper deck – all carronades, without even a couple of long chase guns. Intended for Admiral Duncan's North Sea fleet blockading the Dutch, in July 1796 the ship detoured to rout a French squadron of four frigates, two corvettes, a brig and a cutter. Trollope was knighted for this spectacular exploit, but a lesson was learnt in that during the action the *Glutton* had not been able to return the long-range raking fire of the smaller ships from a total lack of chase guns.

Under the less flamboyant command of William 'Bounty' Bligh the ship went on to take part in the 1799 Texel operation and was heavily engaged at Copenhagen, accomplishing the rare feat of setting fire to the Danish *Dannebrog* with carcass shot (incendiary shells) fired from the upper deck carronades. However, the latter battle showed up the unhandiness of the ex-East Indiamen under sail and Nelson was to complain that *Glutton* and *Ardent* (another John Company purchase) 'sail so heavily that no rapid move could be made with them in the Line or the Order of Sailing'.¹⁹

THE 44-GUN TWO-DECKER

As a cruising class the day of the 44-gun two-decker was over by 1793; indeed, for all its effectiveness, it should have been totally extinct. Their value in colonial warfare had led to a large building programme during the War of American Independence, many of which remained unfinished in 1783. In the meantime official thinking had moved against the 44 as a cruiser, and the influential Comptroller, Sir Charles Middleton, found a more profitable use for them as fast transports. He believed that the amphibious strategy usually adopted by Britain was compromised by the length of time necessary to hire suitable merchant shipping and the subsequent slow sailing of the troop convoys, losing the element of strategic surprise. He advocated assembling a force of coppered – and hence fast-sailing – navy-owned transports that could be instantly available. The perfect type for this task was the 44: it was obsolescent as a cruising ship, but was fast compared with most merchantmen; it had two decks and hence plenty of room for troops or stores, but could still be partially armed for self-defence so might need no convoy; and best of all, there were a number of relatively new hulls available. In fact, many were completed as troopers or storeships during the so-called 'Dutch Armament' of 1787, a limited mobilisation in reaction to a political crisis in the Netherlands.

The majority of 44s served in these auxiliary capacities after war broke out with Revolutionary France in 1793. For these operations the ships were armed *en flûte*, a French term applied to warships not mounting their complete establishment of guns. The ex-44s usually carried twenty long 9pdrs on the upper deck and four 6pdrs on the quarterdeck and forecastle, so were not completely defenceless. The conversion required little structural alteration, so it was possible to return vessels to a full cruising role if required without too much time in dockyard hands: *Regulus* was employed as a cruiser in 1798–1800 between bouts of trooping, for instance.

A few 44s remained in Sea Service – declining from five in 1797 to three in 1801 and two for most of the Napoleonic War – but usually relegated to distant and minor stations.

TABLE 13 Typical 50-gun Ships

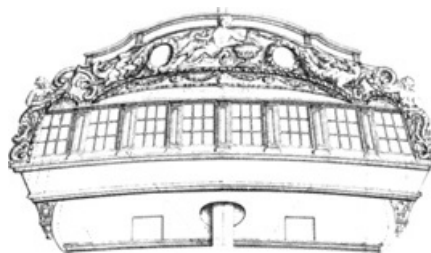
Ship	Navy built for	Date launch	Length ft–ins	Breadth ft–ins	Burthen tons	Armament
<i>Tromp</i>	Dutch	1777	143–10	40–9	1039	22 x 24; 24 x 12; 6 x 6; 2 x 6
<i>Leopard</i>	British	1790	146–0	40–6	1044	22 x 24; 22 x 12; 4 x 6; 2 x 6
<i>Glutton</i>	British*	1795	163–11	42–1	1256	28 x 68 carr; 28 x 42 carr [later rearmed with 18s on lower deck and 32 carr]

NOTE: Armament is given number of guns x calibre in pounds in the order – lower; upper gundecks; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.
* Purchased East Indiaman

TABLE 12 Numbers of 50-gun Ships

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1793	7	5
1797	10	2
1799	10	0
1801	9	1
1804	7	3
1808	9	0
1810	7	0
1812	4	1
1814	2	2

FRIGATES



The frigate as understood at this period was defined as a ship with a single gundeck, quarterdeck and fore-castle, but with a complete, unarmed lower deck (appropriately termed the 'berth deck' in the US Navy, since it accommodated the crew). This lower deck was important because it gave frigates much greater freeboard for their single main battery – often 7ft or more in British ships – which meant that they could use their guns in all weathers, unlike two-deckers which might have to close the lower deck ports in stormy conditions. The most famous scenario of this kind was the *Indefatigable's* harrying to destruction the French 74 *Droits de l'Homme* during a January gale in 1797.

What in modern terms might be called cruisers had been two-decked since the seventeenth century, but they often had a few guns and/or sweep ports on the lower deck, requiring modest freeboard and a consequent topside height not much less than regular two-deckers. However, in the 1740s France began to build small cruisers with no ports in the lower deck, enabling it to be positioned at or below the waterline, and with very little headroom between decks produced a far lower, more weatherly profile. Britain and other naval powers followed suit and the frigate as understood in the Nelsonic era was born. Initially the designation was applied to ships as small as 20 guns, but by the 1790s it was reserved for single-deckers of 28 guns and above, the 20- and 24-gun ships being termed 'post ships', since they were still commanded by post captains like larger ships although they were not considered suitable for proper frigate duties.

POST SHIPS OF 20 AND 24 GUNS

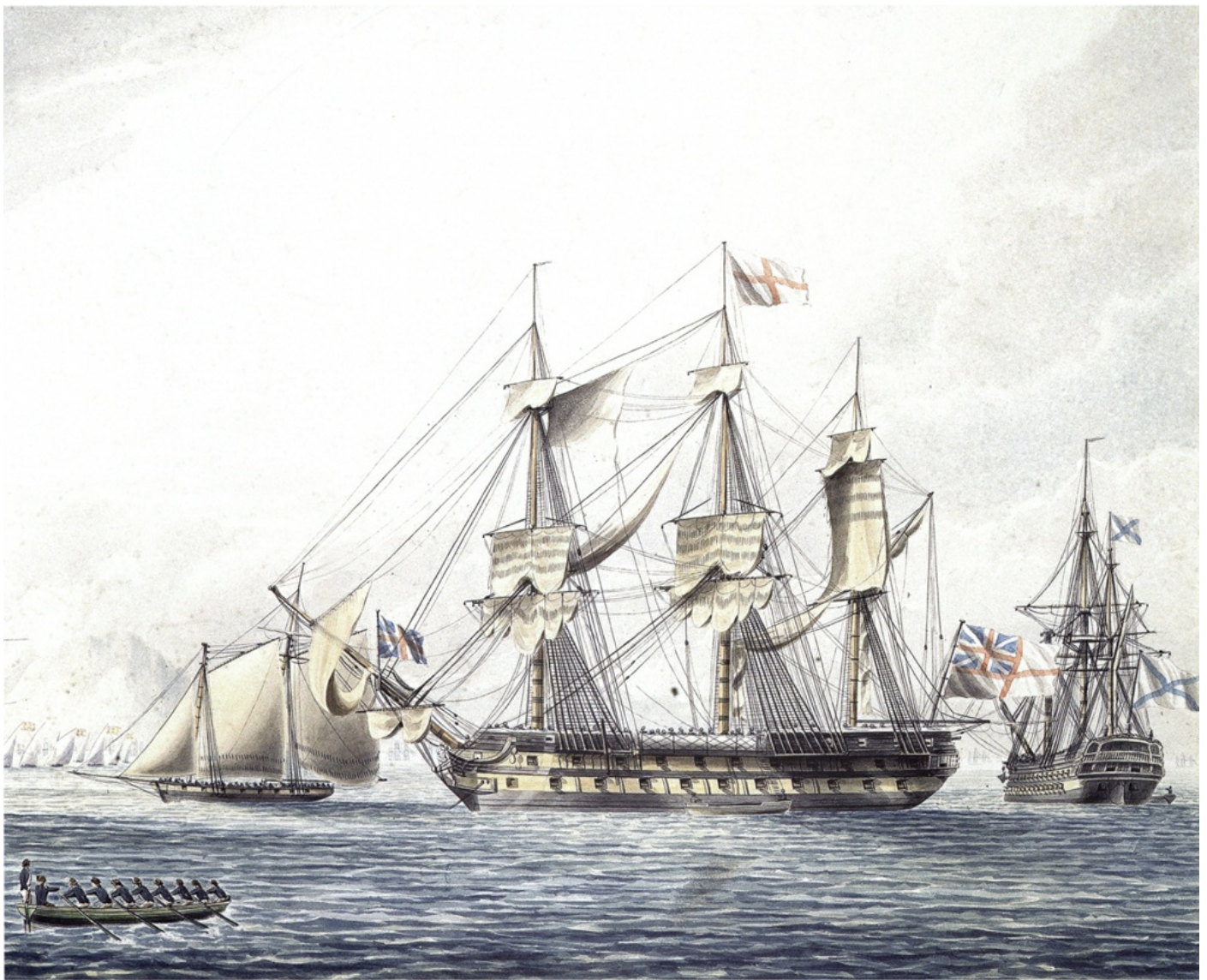
Although no longer considered proper frigates by the 1790s, it is convenient to treat them here as the smallest rated ships rather than to devote a separate section to them. In many ways the post ship bore the same relationship to the frigate as the 50-gun ship did to the line of battle. Both were descendants of more important types of the same gun power, and neither was built in large numbers, but both retained minor roles for which there was no apparent substitute.

When the frigate-form cruiser replaced the old two-decker 24s, new Sixth Rates of both 20 and 24 guns (9pdrs) were introduced shortly afterwards. They adopted the frigate's unarmed lower deck and were very similar in layout, apart from the absence of an orlop platform amidships. With a full quarterdeck and fore-castle, these ships were relatively high for their length, and were never regarded as fast or weatherly. However, they were seaworthy, and in peacetime found favour for long overseas voyages, the best known being *Pandora's* mission to hunt down the *Bounty* mutineers. Just as 50-gun ships were cheaper than bigger two-deckers to commission in peacetime, so the post ship was often employed as a frigate substitute, particularly on the more distant stations. Their wartime utility was more questionable, and only a handful had been built after France's entry into the American War in 1778. As a result there were not many fit for service in 1793. (See [Table 14.](#))

The rise in numbers during the French Revolutionary War was largely the result of captures. These were mainly faster and more weatherly flush-decked ships, some of which were large privateers, but Holland provided a few quarterdecked ships like their British equivalents. Not surprisingly, in the 'big ship' era of the 1790s no new post ships were ordered, but in the numbers-obsessed Napoleonic War these small cruisers again found limited favour, twelve being ordered in 1805.

In the first phase of the war some post ships posed as cruisers, but the capture of *Hyaena* in the West Indies in 1793 – easily overhauled by the 40-gun *Concorde* – emphasised how vulnerable they were to big frigates. *Eurydice*, a notoriously dull sailer, nearly cost Saumarez the whole of his cruiser squadron in June 1794, and only a miniature version of Cornwallis's famous retreat saved the day. In general their poor sailing qualities put them in the 'can neither fight nor run away' category: significantly, when recaptured, *Hyaena* was found to have had her quarterdeck and fore-castle removed by the French and was much faster (or at least, far more weatherly) in consequence. Peter Cullen, who served in the *Squirrel*, said his ship '... though a good sea boat, was not a fast sailer',²⁰ and this more or less summarised their virtues and their vices.

Post ships continued to perform some cruising functions – particularly chasing small privateers in the West Indies – but nearer home they were mainly consigned to convoy duties, often specifically as flag-ships of coastal convoys. Even this had its dangers, and *Daphne* was taken in 1795 while so employed. With a mean draught of about 15ft the post ship offered the same advantages over a frigate as the 50 did over a real battleship, and as a result developed a number of similar roles during the course of the war. They were especially useful on anti-invasion duties, because they could back up the small craft in shallower waters than a frigate could be risked and, because they were commanded by post captains, they could be used as leaders for flotillas of sloops and gunbrigs which would be in the charge of more junior officers – commanders and lieutenants respectively. Thus in 1805 both *Champion* and *Ariadne* were to be found commanding detachments of gunbrigs harassing the invasion preparations in the Channel ports – and the twelve-ship programme of 1805 was probably a response to this requirement.



A *ARGO* was one of very few of the obsolescent two-decker 44s to see much cruising service in the 1790s. This very convincing portrait by the sailor-artist Thomas Buttersworth shows her at Gibraltar in July 1799, displaying what was probably a unique honour for any 44 – flying the flag of a full admiral. Earl St Vincent chose to take passage home in the ship in order not to deprive the Mediterranean Fleet of a more powerful unit, a typical St Vincent gesture, putting the good of the service before his own comfort, *Argo* shares many of the appearance features common to more modern ship types at this time – notably berthed-up barricades on the upperworks and a ‘Nelson chequer’ paint scheme – but there is no disguising the short-and-tall proportions of the hull that made the sailing qualities of 44s so poor compared to frigate-form ships. The painting is full of interesting, if incidental, detail, including the Russian two-decker astern, the schooner to starboard and, in the distance, a flotilla of Spanish gunboats are seen under sail. (PAH9510)



THE small post ships did not have a good reputation when it came to sailing qualities, a judgement undoubtedly compounded by incidents like that shown here. Off the Channel Islands on 8 June 1794 a small squadron under Sir James Saumarez ran into a massively superior French force of two rasée 50s, two frigates and a brig. The poor sailing of the 24-gun *Eurydice* threatened the safety of his retreating squadron, but Saumarez's two frigates *Crescent* and *Druid* fought a delaying action for long enough to allow the *Eurydice* (in the right foreground) to get away. However, Saumarez – born and bred a Guernseyman – needed all his local knowledge of those treacherous waters to extricate his whole force from what looked like certain disaster. The vulnerability of post ships was recognised and they were soon removed from the Channel frigate squadrons. (PU5477)

TABLE 14 Numbers of Post Ships, 20–24 Guns

Year	No in Sea Service	No in Ordinary or Repairing
1793	5	7
1797	15	2
1801	21	2
1805	12	3
1808	21	2
1811	14	1
1814	25	4

TABLE 15 Typical Vessels of 20–24 Guns

Ship	Navy built for	Date launch	Length ft–ins	Breadth ft–ins	Burthen tons	Armament
<i>Sirene</i>	Dutch	1786	117–10	33–4	574	22 x 9; 2 x 6 + 6 x 18 carr; 2 x 18 carr
<i>Bordelais</i>	French*	1799	138–6	31–9	624	22 x 32 carr + 2 x 9
<i>Banterer</i>	British	1807	118–0	32–0	537	22 x 9; 6 x 24 carr; 2 x 6 + 2 x 24 carr

NOTE: Armament is given number of guns x calibre in pounds in the order – gundeck; quarterdeck; forecstle; + indicates a mixed armament of long guns, quoted first, and carronades.

* Flush-decked privateer.

Similar duties resulted from the war with Denmark. Five post ships went with Parker to the Baltic in 1801 – *Jamaica* leading the gun-brigs at the battle of Copenhagen – and after 1807 they were often to be found supporting small craft in the hit-and-run fighting in the skerries and fjords.

Their suitability for inshore work was confirmed by warfare in the Adriatic, where *Porcupine's* exploits in 1807–8 may stand as a prime example.

The Admiralty of Charles Yorke (May 1810–March 1812) later rerated some of the larger sloops as post ships, but this was an administrative move of no significance to the design or employment of these ships.

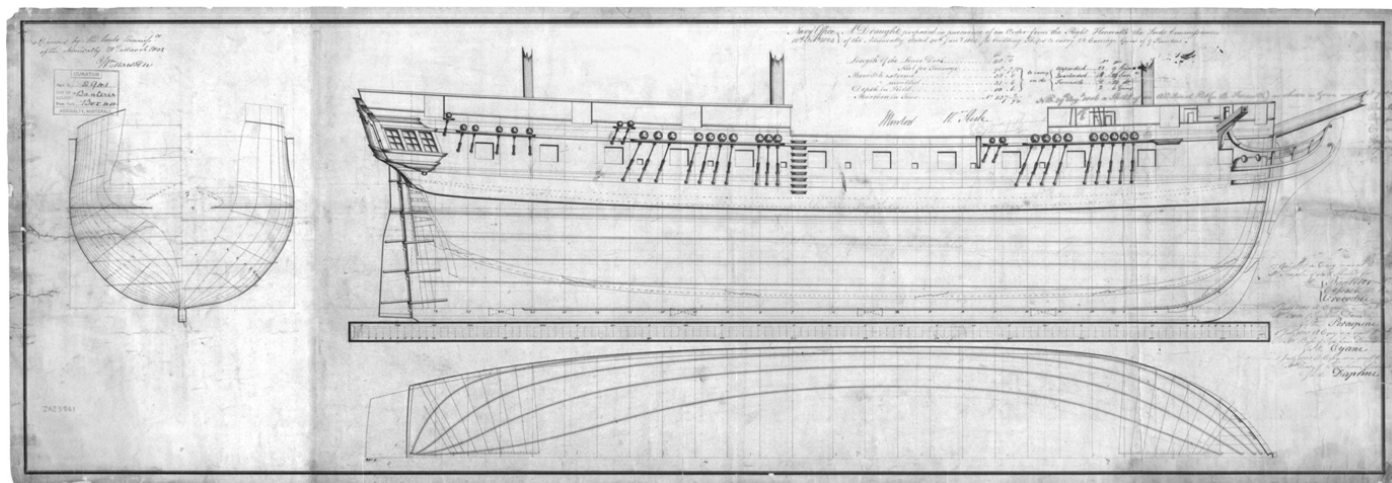
FRIGATES ARMED WITH 9PDRS

The first British frigates, the *Unicorn* and *Lyme* of 1748, were armed with twenty-four 9pdrs on the upper deck, and later had four 3pdrs added to the quarterdeck. Apart from upgrading the latter to 6pdrs in 1780, there was little growth in the armament (or size) of 28-gun frigates during the four decades during which they were built; survivors acquired additional carronades in later life. During the American Revolutionary War it was decided that they were too small and no more should be built, but it was impossible to find enough competent builders for larger ships so in 1782 a programme of nine further 28s was put in hand. Eight of these were eventually completed, the last of their line to British order, but it meant that there were significant numbers available on the outbreak of the next French war. (See [Table 16](#).)

The fleet list shows a steady decline in numbers and the type had effectively disappeared by the end of the war. France had ceased building 8pdr frigates, their equivalent of British 28s, in the mid-1770s, but large French quarterdecked corvettes were sometimes rated as 28s on capture. Many of the last British-built 28s were rearmed with 24pdr or 32pdr carronades on the upper deck and served as floating batteries.

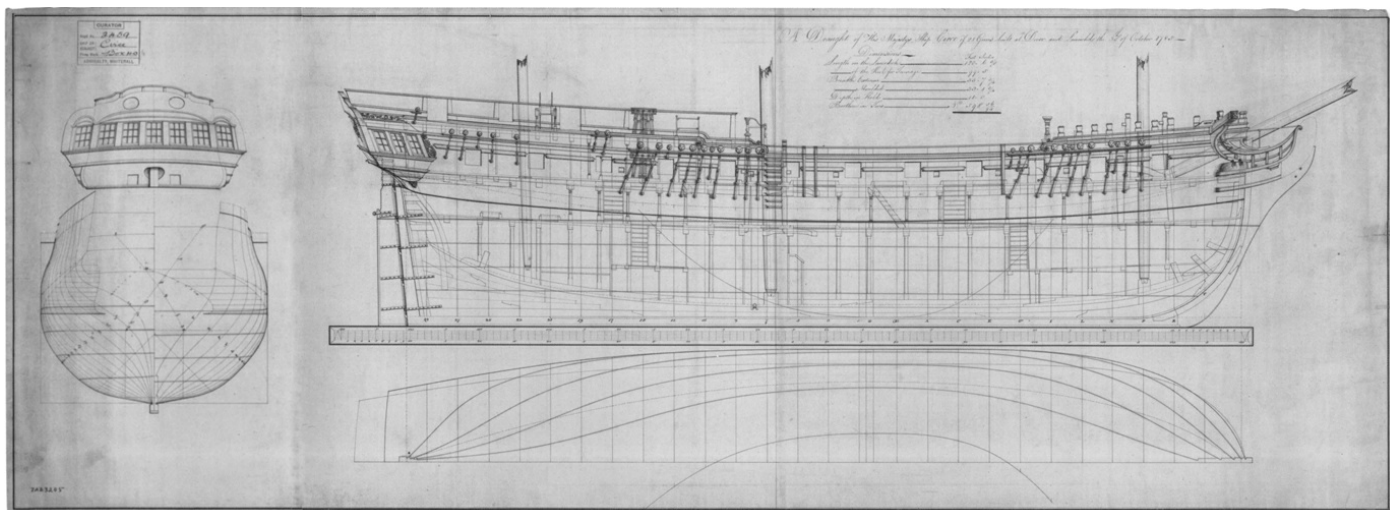
TABLE 16 Numbers of 9pdr-armed Frigates

Year	No in Sea Service	No in Ordinary or Repairing
1793	10	13
1797	20	3
1799	15	6
1801	10	1
1804	6	2
1808	8	1
1810	7	1
1812	3	0
1814	0	0



A DRAUGHT PREPARED IN PURSUANCE OF AN ORDER FROM THE RIGHT HONORABLE THE LORDS COMMISSIONERS OF THE ADMIRALTY, DATED 30TH JAN 1805 FOR BUILDING SHIPS TO CARRY 22 CARRIAGE GUNS OF 9 POUNDERS. NAVY OFFICE, 12TH FEB 1805.

This *Banterer* class was part of a crash programme of twelve ships, to two designs, put in hand during the pre-Trafalgar invasion scare. Unlike contemporary sloops, which carried an all-carronade armament, these ships mixed long guns with the short-barrelled weapons. This suggests that they were seen as general purpose cruisers, possibly intended to relieve real frigates from some of the less demanding roles, like convoy escort, that sometimes fell to their lot. (J7038)



A DRAUGHT OF HIS MAJESTY'S SHIP *CIRCE* OF 28 GUNS BUILT AT DOVER AND LAUNCHED THE 30TH OCTOBER 1785.

During the American War the Admiralty had decided to build no more 28s, but they needed every ship they could get. There were yards at Dover and nearby Sandgate that could construct nothing larger, so the type was reintroduced even though they were felt to be too small for contemporary requirements. Eight of the nine originally ordered from these yards were completed, of which *Circe* was one of the last to be launched. They could be distinguished from earlier members of the class by flush gangways and solid quarterdeck barricades. (J6607)

TABLE 17 Typical 9pdr-armed Frigates

Ship	Navy built for	Date launch	Length ft-ins	Breadth ft-ins	Burthen tons	Armament
<i>Circe</i>	British	1785	120-6	33-6	593	24 x 9; 4 x 6
<i>Surprise</i>	French	1794	126-0	31-8	578	24 x 9; 8 x 4 + 6 x 12 carr; 2 x 4 + 2 x 12 carr

NOTE: Armament is given number of guns × calibre in pounds in the order – gundeck; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.



FROM their first introduction in the mid-1750s until the Navy stopped ordering them around 1783, British 12pdr 32s barely changed in their dimensions. This presents difficulties in identifying models: this one was originally thought to be the *Orpheus* of 1773 (because the figurehead holds what appears to be a lyre), but modern research has established that it was one of the models commissioned by Lord Sandwich to encourage royal interest in the Navy. It actually represents the *Winchelsea* of 1764, and is complete on one side but unplanked on the other, with every other pair of frames omitted to show interior details. Traditionally, British ships were more heavily built than their opponents, the core of their strength being more substantial frames, more closely spaced, although they also employed a more elaborate system of fastening, directed towards greater structural rigidity. (F9288)

TABLE 18 Numbers of 12pdr-armed Frigates

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1793	21	23
1797	50	9
1799	45	13
1801	43	1
1804	22	11
1808	35	8
1810	32	3
1812	20	5
1814	11	0

TABLE 19 Typical 12pdr-armed Frigates

Ship	Navy built for	Date launch	Length ft-ins	Breadth ft-ins	Burthen tons	Armament
<i>Mabonesa</i>	Spanish	1789	145-1	39-3	974	26 x 12; 8 x 6; 2 x 6
<i>Helder</i>	Dutch	1796	122-1	36-2	635	26 x 12; 10 x 32 carr; 2 x 6 + 2 x 32 carr
<i>Triton</i>	British	1796	142-0	36-0	848	26 x 12; 4 x 6 + 6 x 24 carr; 2 x 6 + 2 x 24 carr
<i>Chiffonne</i>	French	1799	144-1	37-11	921	26 x 12; 2 x 9 + 10 x 32 carr; 2 x 9 + 2 x 32 carr
<i>Alexandria</i>	British	1806	127-0	34-0	657	26 x 12; 2 x 6 + 6 x 24 carr; 2 x 6 + 2 x 24 carr

NOTE. Armament is given number of guns × calibre in pounds in the order – gundeck; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.

FRIGATES ARMED WITH 12PDRS

In the French navy the 12pdr frigate had followed close on the heels of 8pdr ships, the prototype, *Hermione*, being launched in 1748. In Britain the 12pdr ship was adopted at the outbreak of the following war in 1756, with designs for 32-gun and 36-gun classes. Both carried main batteries of twenty-six 12pdrs, but the secondary armament was six and ten 6pdrs respectively. These ships were regarded as replacements for the old two-decked 44s, but because one deck of the new frigates was unarmed they were seen in some conservative circles as relatively expensive ships judged on a firepower-to-tonnage criterion. As a result, only three 12pdr 3 6s were ordered (the *Pallas* class), and the size of British 32s was held down to about 700 tons for the whole thirty-year period in which they were built.

To the British Admiralty the most important criterion for cruising ships, perhaps even more than for battleships, was numbers. There were never enough frigates and the more theatrical admirals claimed they would die with ‘want of frigates’ engraved on their hearts, so the small-ship policy made strategic sense because it maximised the number of ships that could be built for any given budget. However, it made real sense only when Britain enjoyed naval supremacy, when the Navy was not forced at the level of fleet, squadron or individual ship to act on the defensive. This latter predicament applied during the American Revolutionary War, when Britain lost command of the seas to her French, Spanish, Dutch and American opponents. A new confidence in the French navy made 12pdr frigates as large as 900 tons very formidable opponents, threatening to completely outclass the small British equivalents.

This led to some radical rethinking at the Admiralty, and the rapid introduction of three major innovations. The first, and arguably most important, was copper sheathing, first tested on the 32-gun frigate *Alarm* in 1761 but extended to the whole cruising fleet during the course of the war. This had the effect of lengthening the amount of time ships could spend at sea between dockings – in effect multiplying the number of ships available for duty at any one time – and also made ships faster since it reduced frictional resistance. Moreover, it allowed them to retain their performance longer by slowing the rate of fouling compared with earlier modes of sheathing (anti-fouling). The second innovation was the carronade, which although short-ranged fired a heavy shot for its weight. This was ideal for frigates, with large areas of their upperworks unarmed, so there need be no (or at least minimal) loss of long guns. The augmented firepower provided by these new weapons went a long way to redressing the balance between British frigates and their far larger French and Spanish opponents. The third novelty was a quantum leap in firepower with the introduction in the late 1770s of frigates armed with 18pdr main batteries.

Despite a rearguard action by the proponents of the two-decked 44, the 18pdr frigate had proved itself by 1783 and thereafter no new 12pdr designs were ordered. There were a few tardy completions of the wartime building programmes, and 18pdr ships were still very rare, so 12pdr ships dominated the Navy List up to the end of the French Revolutionary War. (See [Table 18](#).)

The vast majority of ships added to the 12pdr classes were prizes, some of the ex-French and Spanish frigates being as large as British 18pdr ships. There were a few new British-built 12pdr ships, but no new designs – the old *Richmond* class 32 of 1756 was revived in modified form by St Vincent’s administration in 1804 for eight ships (one subsequently cancelled), but the fir-built *Shannon* and *Maidstone*, and James Gambier’s experimental *Triton* were designed for 18pdrs and reduced to 12s during construction. By the 1790s the 18pdr was the norm for frigate main batteries.

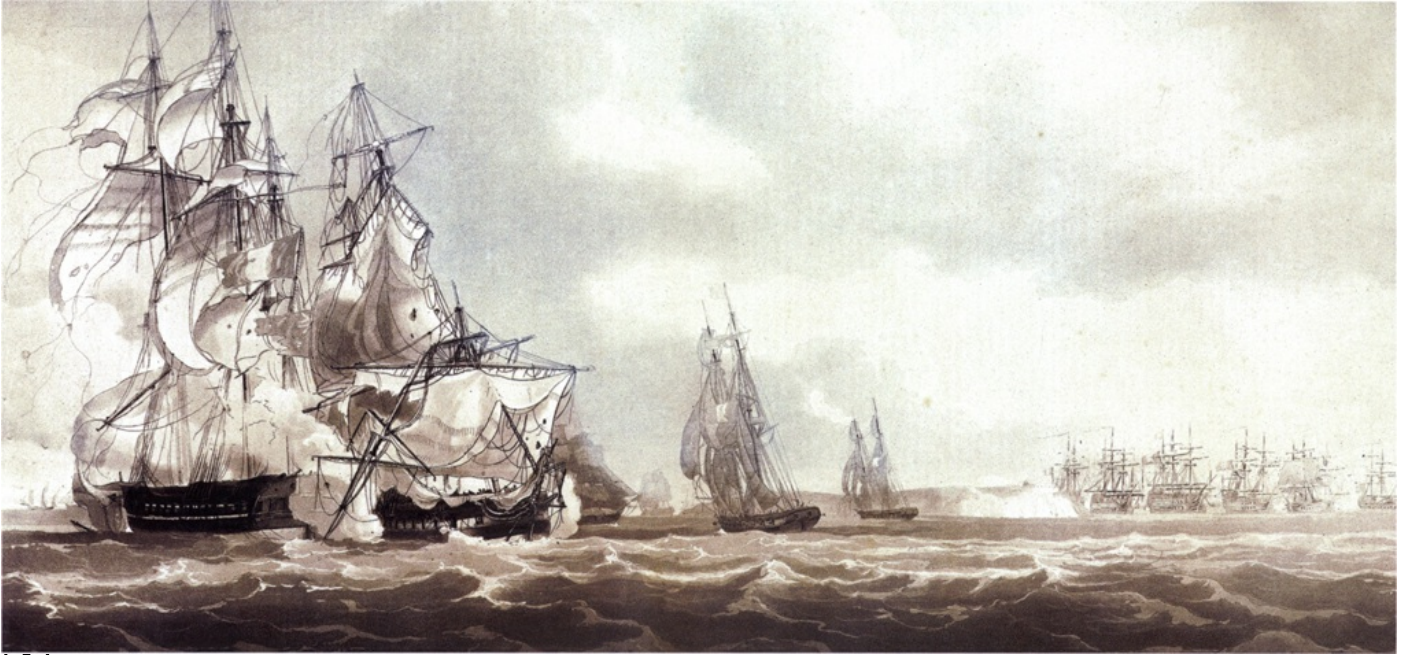
FRIGATES ARMED WITH 18PDRS

The largest navy always has the most to lose from major changes, and for as long as Britannia ruled the waves the Royal Navy traditionally allowed its opponents to take the technical risk of innovation or the financial one of increasing size. During the American War of Independence Britannia’s trident was most seriously at risk, and in some respects this policy was reversed. An important result of this change of heart was the British decision in 1778 to introduce the 18pdr gun as the upper deck armament of powerful new frigate designs to be rated at 36 and 38 guns.

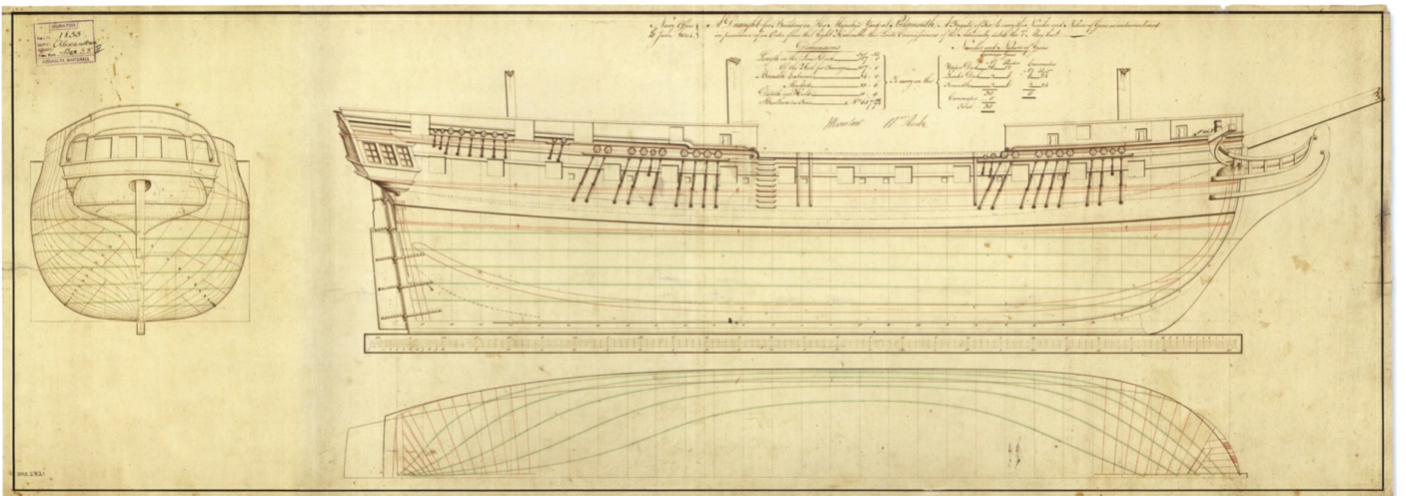
The difference between the two ratings was the upper deck armament – twenty-six 18pdrs for the 36 and two more for the 38. The resulting *Minerva* class 38s and the 36s of the *Flora/Perseverance* classes were very powerful cruisers and for some years they had no equivalent in the navies of the main naval powers, a superiority enhanced by the addition of carronades to the 9pdr long guns on their upperworks. However, like so many British ships, they were found to be too small for their batteries, and the *Melampus*, intended as a 38, was redesigned during construction with two less upper deck ports. The experiment was a decided success and the new ship, now classed as a 36, was regarded as superior to existing 38s and 36s as a fighting ship and under sail. As a result when new classes of 36s and 38s were ordered in the 1790s there was a move towards increasing the space between the guns. At the time there was also a wider concern that French ships seemed faster under sail, and this was blamed on the relatively short hull favoured by British designers for strength and manoeuvrability. Therefore, the ships tended to get proportionately longer – indeed the *Phoebe* class 36s of 1794 were simply lengthened *Perseverances* – but Lord Spencer’s administration promoted significantly larger ships (as it was simultaneously doing with ships of the line).

For frigates the new policy manifested itself in a rapid increase in absolute size, frequent design changes, with many ‘one-off and experimental hull forms, and a shift in proportions towards longer and shallower hulls. French designs became the focus of concerted attention for the first time since the 1760s, and a number of prizes were ‘copied’ – although only their hull lines were imitated, and their structure and layout followed British practice, which required far more robust and better-appointed ships suitable for very long range cruising. Armament was considerably augmented at the same time by the gradual adoption of 32pdr carronades for the upperworks, leaving only two or four 9pdr chase guns, giving a total of 46 to a nominal 38-gun frigate. As part of the drive towards bigger frigates, two vessels (*Acasta* and *Lavinia*) were ordered with thirty 18pdrs and rated as 40-gun ships, but later designs preferred the greater space allowed by twenty-eight gunports and a pair of bridle ports for

occasional use with chase guns.



THERE can be no better illustration of the relative importance of ships and men in the age of sail than the exploits of Lord Cochrane while in command of the 32-gun *Pallas*. Despite the fact that his ship, built to a fifty-year-old design, was barely half the average size of modern frigates, Cochrane was confident enough to take on the 18pdr-armed *Minerve*, plus three brig sloops, almost within gunshot of a French battlefleet in May 1806. What should have proved an impossible task was actually going his way, when the materiel disparity finally caught up with him – while he was attempting to board, a collision between the big French frigate and his flimsy fir-built vessel brought down his topmasts, and he was lucky to be left to limp away. (PY6337)



A DRAUGHT FOR BUILDING IN HIS MAJESTY'S YARD AT CHATHAM A FRIGATE OF FIR... [ALEXANDRIA, THAMES CLASS] IN PURSUANCE OF AN ORDER FROM THE RIGHT HONORABLE THE LORDS COMMISSIONERS OF THE ADMIRALTY, DATED THE 1ST MAY LAST. NAVY OFFICE, 18TH JUNE 1804.

Taking over from Spencer's, the Board headed by St Vincent was technologically regressive, especially where large ships were concerned. Nowhere was this better demonstrated than in the ordering of eight frigates to a design of 1756, although their small size may have been a political ploy so that an administration under parliamentary pressure could claim the maximum number of ships under construction. They were subjected to a number of 'economical' fastening schemes designed to avoid, or reduce, the need for scarce 'grown' knees, and were said to be weak as a consequence. Officers who commanded frigates of this class were universally critical of them: Napier called the *Thames* little better than a candle-box; while the poor sailing (not to mention light construction) of Cochrane's *Pallas* was to give him many heart-stopping moments; Sir George Collier complained of *Minerva* as first fitted, while *Alexandria* was only saved from capture by the USS *President* in July 1813 by the caution of Commodore Rodgers. (J5546)

The new heavy frigates were a high priority in the 1790s and their numbers increased rapidly from both new construction and numerous prizes. (See [Table 20.](#)) Such was the speed of change under Spencer that no standard 38 or 36 had emerged by the time St Vincent took over as First Lord in February 1801. The new administration, believing the Peace of Amiens would last, dedicated itself to retrenchment and dockyard reform. What few orders were placed followed St Vincent's stated belief that ships had become unnecessarily large, and reverted to older and smaller designs, including a return to the original 36-gun 18pdr of 1778. He even built 12pdr 32s to a design of 1756, but this may have been politically inspired: his administration was under heavy parliamentary attack for being so ill-prepared when the war was renewed, and these small and rapidly-built fir ships allowed him to point to a larger number of 'frigates' in hand than would otherwise have been the case.

Although the 1790s had established the 36 and 38 as the current norm for frigates, there were a few smaller 18pdr ships rated as 32s. The

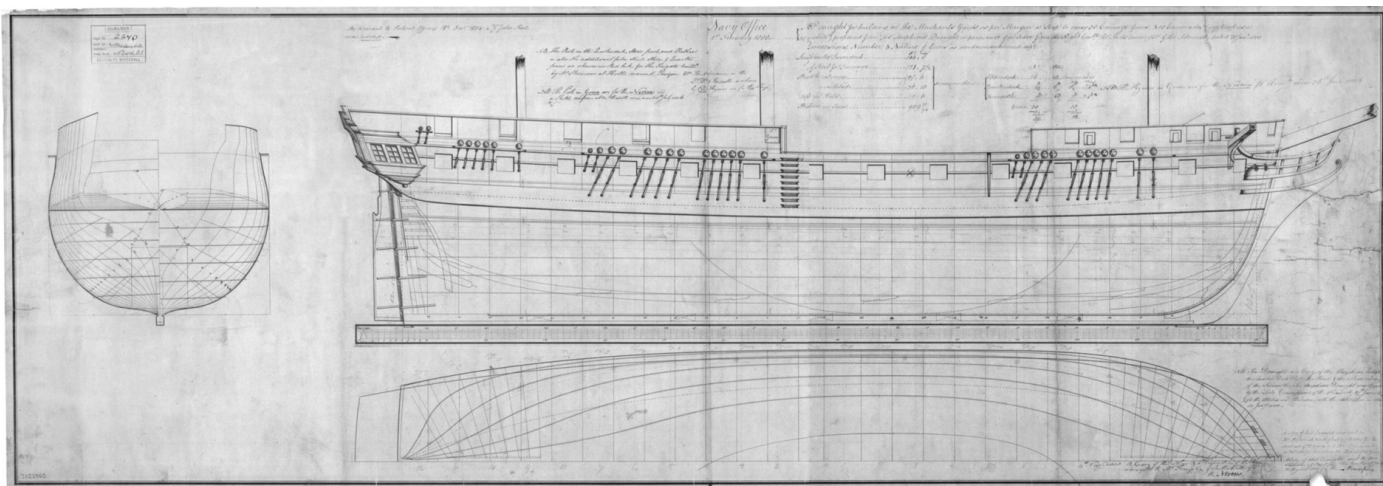
early 800-ton ships were an attempt to build a minimal 18pdr ship and the rapid leap to 900 tons with the *Amphion* class pointed to their inadequacy. The main difference from 36s was the quarterdeck and forecastle armament of 6pdrs and 24pdr carronades, giving the nominal 32 a total of 40 guns. When Middleton (shortly to become Lord Barham) took over the Admiralty in 1805, there was a short-lived flirtation with 32-gun frigates, mostly based on obsolescent and rather small French prototypes, but thereafter the few vessels built were intended to employ smaller yards incapable of constructing larger frigates.

The nature of the conflict changed after Trafalgar, particularly once the introduction of the Continental System and the economic blockade made it a war of attrition. Numbers became even more important, while after a decade or more of almost uninterrupted success against all-comers technical improvement in ship design seemed less of an issue. As a result, frigate building was confined to large numbers of standard designs – as with the ‘Surveyors’ class’ 74s or the *Cruizer* class brigs. However, for frigates the designs were well-proven and all dated from the 1790s: the chosen 36 was the *Apollo*, the medium (150ft) 38 the *Leda*, and the large (154ft) 38 the *Lively*. Below the waterline the *Leda* was based on the French *Hébé*, captured as far back as 1782, but still employed as a hull form by the French navy so not outclassed; the other two were designs by Sir William Rule and were fine all-round ships. These were the only frigates ordered between 1806 and the out-break of the War of 1812. Even then, although larger 24pdr ships were designed (see below), the existing classes continued to be built. In fact, a fir-built ‘austerity’ variant of the *Apollo* called the *Scamander* class and a fir-built version of the *Leda* formed the backbone of the 1812 emergency programme.

FRIGATES ARMED WITH 24PDRS

At the beginning of the war there were no ships of this description on either side. However, in 1793 five French 74-gun ships that suffered from serious stability problems were cut down to frigates by the removal of the upperworks and the transformation of the upper gun-deck into a quarterdeck and forecastle, the resulting ship type being described as a *rasée*. Rumours of these mysterious and potentially dangerous ships soon reached the British, and although their exact armament remained unknown, as a stopgap the British added a 50-gun ship, and occasionally even a 74, to their Channel cruiser squadrons. Like German surface raiders of the twentieth century, sightings abounded, although not one *rasée* was ever brought to action. In fact, the French *rasées* had proved too stiff after cutting down and put in nowhere near as much sea-time as the British imagined.²¹

Besides the *rasées*, the French were also thought to be constructing genuine 24pdr-armed frigates, and in April 1794 Sir John Borlase Warren’s squadron captured one such vessel – the *Pomone*, a very large frigate of 1250 tons armed with twenty-six 24pdrs.²² Since there was nothing comparable in the Royal Navy, the Admiralty felt compelled to respond, and in July ordered the Navy Board to suggest four of the better-sailing 64-gun ships that might be cut down in the same way as the French *rasées*. In the end only three could be found, but the *Anson*, *Magnanime*, and above all Pellew’s famous *Indefatigable*, provided a rapid addition to the firepower of frigate squadrons in home waters. The Admiralty also took a longer view and in 1795 ordered a whole programme of eight first-class frigates. Four were larger than existing 18pdr ships, but eventually only two were thought suitable for 24pdrs: the *Endymion*, which was to the lines of the *Pomone*, and a new design by the Senior Surveyor, Henslow, which became the *Cambrian*.²³ Between 1797 and 1801 all four of the only purpose-designed 24pdr frigates in the French navy, including the enormous 1400-ton *L’Egyptienne* and *Forte*, were captured by the British, but such was the tactical superiority of the Royal Navy that no home-built equivalent was deemed necessary.



A DRAUGHT FOR BUILDING IN THE XV MERCHANTS YARDS... A SHIP TO CARRY 30 CARRIAGE GUNS & 10 CARRONADES (REGISTERED AS A 32 GUNSHIP) PREPARED FROM THE AMPHION’S DRAUGHT IN PURSUANCE OF AN ORDER FROM THE RIGHT HONBLE THE LORDS COMMISSIONERS OF THE ADMIRALTY, DATED 11TH INST. NAVY OFFICE, 28 JAN 1800.

By the end of the American War it was clear to the British that any future frigates would have to be armed with 18pdr guns, but the new 38s and 36s of 850–950 tons were considered too large and expensive to be built in sufficient numbers. Therefore, in 1790 a new ‘minimal’ 18pdr 32-gun class of about 780 tons was introduced, but these proved too cramped, and there was a substantial leap to over 900 tons for the *Amphion* class of 1796. They carried the same twenty-six 18pdrs as a 36, but had 24pdr carronades instead of 32s. The result was a very successful design, and this draught of *Medusa* also shows minor modifications for the last pair, *Proserpine* and *Nereus*, ordered in 1804–5 and built in yards outside the usual Navy Board orbit. (J5897)

TABLE 20 Numbers of 18pdr-armed Frigates

Year

No in Sea Service

No in Ordinary or Repairing

1793	11	6
1795	36	0
1797	45	2
1799	46	4
1801	68	1
1804	57	7
1808	76	15
1812	98	9
1814	103	11

TABLE 21 Typical 18pdr-armed Frigates

Ship	Navy built for	Date launch	Length ft-ins	Breadth ft-ins	Burthen tons	Armament
<i>Venus</i> , 40	Swedish	1783	150-0	40-3	1069	26 x 18; 12 x 9; 2 x 9
<i>Virginie</i> , 44	French	1794	151-3	39-10	1065	28 x 18; 6 x 8 + 4 x 36 carr; 6 x 8
<i>Immortalité</i> , 36	French	1795	145-2	39-2	1010	26 x 18; * 8 x 9 + 4 x 24 carr; 2 x 9 + 2 x 24 carr
<i>Imperieuse</i> , 40	Spanish	1797	148-1	40-1	1042	28 x 18; 12 x 8; 2 x 8
<i>Medusa</i> , 32	British	1801	144-0	37-6	909	26 x 18; 4 x 6 + 4 x 24 carr; 2 x 6 + 2 x 24 carr
<i>Cbesapeake</i> , 38	USA	1799	151-0	40-11	1135	28 x 18; 14 x 32 carr; 2 x 9 + 2 x 32 carr
<i>Euryalus</i> , 36	British	1803	145-0	38-2	943	26 x 18; 12 x 32 carr; 2 x 9 + 2 x 32 carr
<i>Lively</i> , 38	British	1804	154-0	39-5	1071	28 x 18; 14 x 32 carr; 2 x 9 + 2 x 32 carr
<i>Perlen</i> , 38	Danish	1804	156-0	41-3	1203	28 x 18; * 14 x 32 carr; 2 x 9 + 2 x 32 carr
<i>Nymphen</i> , 36	Danish	1807	140-4	38-0	907	26 x 18; 12 x 32 carr; 2 x 9 + 2 x 32 carr
<i>Granicus</i> , 36	British	1813	143-0	38-2	930	26 x 18; 12 x 32 carr; 2 x 9 + 2 x 32 carr

NOTE: Armament is given number of guns x calibre in pounds in the order – gundeck; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.
*Designed for 24pdrs



ONE of the first generation of 18pdr frigates, the 36-gun *Perseverance* class of 1779, was revived by the St Vincent administration in 1801, as part of its policy of returning to moderate dimensions. The design was unchanged in essentials, but as this model demonstrates, the

topsides were 'modernised' with fully berthed-up barricades on the forecastle and quarterdeck to provide for a largely carronade armament on these decks. This design had been 'stretched' in 1794 for the *Phoebe* class, in order to improve its speed and to provide more space on the upper deck to work the guns, so the choice of a design already found wanting suggests St Vincent placed no great store by technological improvement. They were, of course, cheaper – cost was calculated per ton, and on this basis they were about 18 per cent less than the latest 18pdr class; economy was a guiding principle of the Admiralty under St Vincent. (F5815-002)

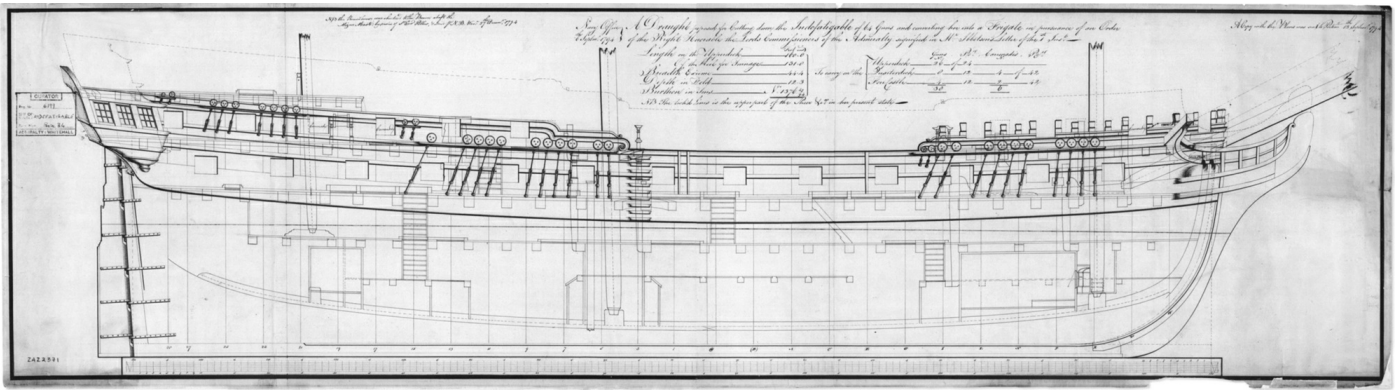
This situation persisted until the shock encounters in 1812 between British 18pdr frigates and the American spar-decked 44s of the *Constitution* type. After two decades of almost uninterrupted victories, often against significantly superior odds, British frigate captains expected to win – but they had never been opposed to ships like these. With two flush decks, the scantlings of line of battle ships and an armament of long 24pdrs and 42pdr carronades, the American ships were nearly half as big again as British 38s and threw a broadside weight of metal 50 per cent heavier. There was nothing in the Royal Navy to match them, and something had to be done – and quickly, at that. To save time the largest existing design, the *Endymion*, was adapted for two extra upper deck guns, and five half-sisters were constructed as rapidly as possible from fir.

However, even these were some 300 tons smaller than the American vessels so two so-called 'double-banked frigates' were knocked up, also in softwood, and went to sea as the *Leander* and *Newcastle* some six months after ordering – a tribute to the industrial power of the Blackwall yard that built them. These were genuinely two-decked ships with a spar deck armament of 42pdr carronades over main deck long 24s, although the American frigates had, in fact, given up mounting guns on the gangways because it so badly affected performance under sail. One further stopgap measure was the cutting down of three small 74s (*Goliath*, *Saturn* and *Majestic*), like the *rasées* of 1794, but armed on the lower deck with their original 32pdrs.



DESPITE the drive for increased speed in the 1790s, British frigates required other qualities in equal if not greater measure. Traditionally, there was more emphasis on seakeeping, weatherliness (superiority working to windward) and heavy-weather performance, combined with a robust, capacious hull for long endurance. They were genuine all-weather cruisers that had to be capable of handling anything the elements, or the enemy, could throw at them. The close blockade of Toulon was one of the riskier stations and, as this lively watercolour shows, it required a combination of good seakeeping and first-class seamanship to prevent disaster. In this incident during a winter gale in 1812 the *Havannah* and *Curacoa* (foreground) escaped from a powerful French squadron of five ships, despite the *Curacoa* splitting main topsail and foresail. Both were 36-gun frigates of the *Euryalus* class, which was built in greater numbers (twenty-six) than any other British frigate class of this era. Although not outstanding in any one quality, their excellent all-round abilities combined in a relatively small hull (943 tons) made them ideal for Royal Navy purposes. (PAH8402)

The emergency programme was put in hand in a climate of fierce if ill-informed criticism, in the hope that the Navy's standing in the country could be rescued by a successful single-ship engagement between one of these new ships and an American frigate. However, seapower does not work like that. The steady pressure of blockade by a myriad of ordinary warships destroyed almost all American overseas commerce and sapped the nation's will to carry on the war. Not one of the expensively-provided emergency ships faced an American frigate: the only 24pdr frigate that met a US 44, the old *Endymion*, acquitted herself well against the *President*, but in the end the bigger American ship would have escaped but for the rest of the blockading squadron. As long as the technology is vaguely comparable, it is always numbers rather than individual quality that counts.



A DRAUGHT PROPOSED FOR CUTTING DOWN THE *INDEFATIGABLE* OF 64 GUNS AND CONVERTING HER INTO A FRIGATE IN PURSUANCE OF AN ORDER FROM THE RIGHT HONORABLE THE LORDS COMMISSIONERS OF THE ADMIRALTY SIGNIFIED IN MR IBBOTSON'S LETTER OF THE 1ST INST. NAVY OFFICE, 6TH SEPT 1794.

The Admiralty's rapid response to rumours of very powerful French cruisers was to cut down three 64-gun ships to the clamps of the upper deck and replace the upperworks with the low topsides of a frigate. Because the great cabin was on the upper deck, this meant creating a poop on the new quarterdeck, which produced unnecessary windage, but *Indefatigable's* first captain, Sir Edward Pellew, succeeded in having its length cut back to the mizzen. The original profile of the ship as a 64 can be seen in ticked line; with so much topside removed it is clear why frigates were more weatherly than two-deckers, whatever their relative speed (J5567)

From this point of view the advent of the 24pdr frigate was unwelcome to the British, who commanded the world's seaborne trade and had the largest empire in the world to defend. Such ships were extremely expensive to build and to run, and could never be justified in large numbers. Rather reluctantly, the Admiralty accepted that the 24pdr ship would be a feature of post-war navies and particularly those like the French and Russian which favoured *guerre de course* strategies. Once the initial American panic had died down, the Surveyors were set the task of designing the smallest viable 24pdr frigate. This requirement produced *the Java*, which became the prototype of a post-war class of 50-gun 24pdr frigates, which although structurally spar-decked eschewed the gangway guns of a genuine 'double-banked' frigate.

THE ROLE OF THE FRIGATE

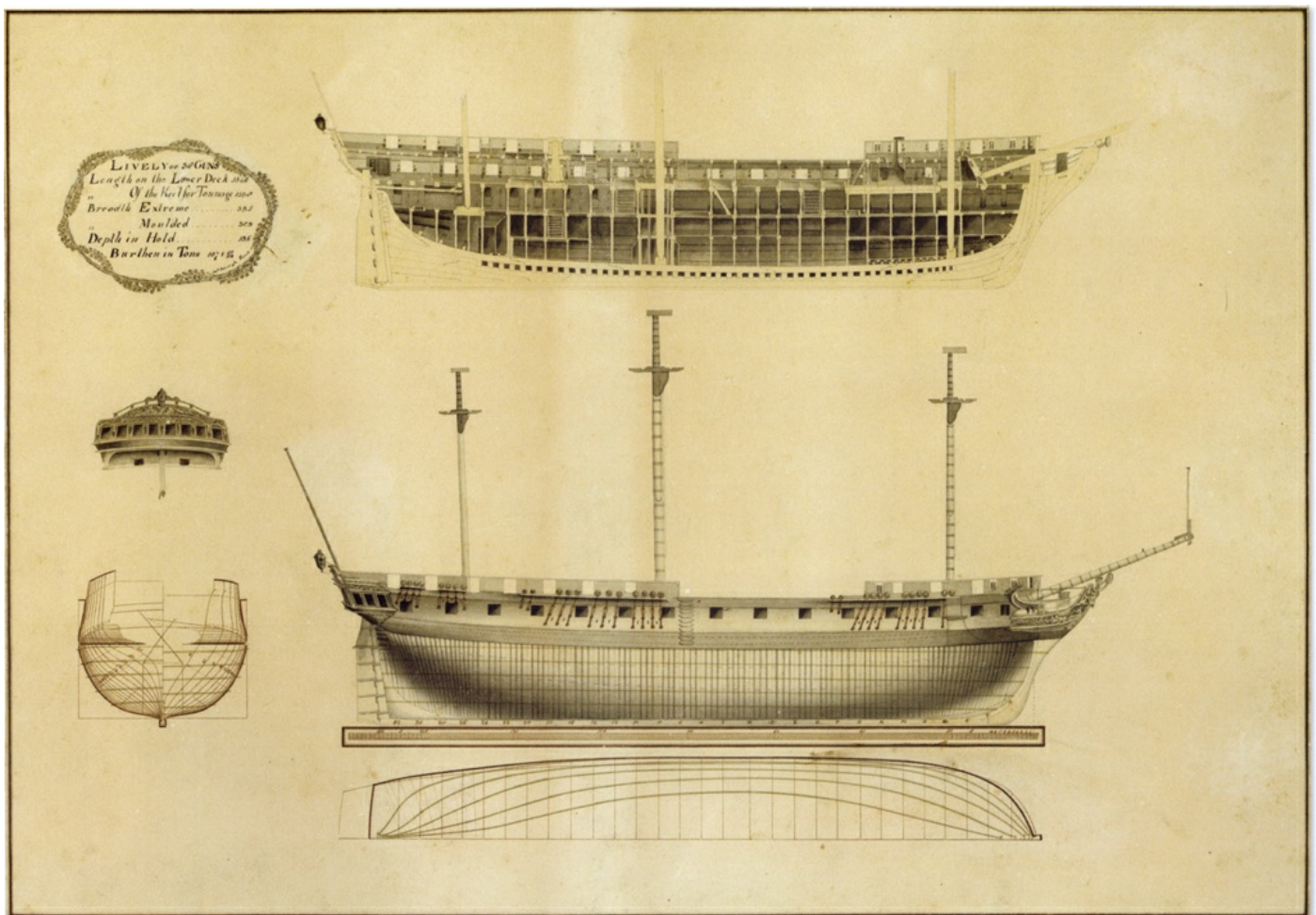
The sailing frigate was the ancestor of the modern cruiser and its principal duties can be divided in much the same way into fleet and trade protection roles. The fleet duties encompassed both strategic and tactical reconnaissance, and in action assisting the line of battle ships and repeating signals; trade protection was accomplished directly by convoy escort and indirectly by hunting down commerce destroyers – enemy frigates, smaller craft and privateers. In theory, any rate of frigate could – and did – perform any of these functions, but in practice a more precise division of labour grew up during the wars of 1793–1815, particularly between the heavy 18pdr (as well as the later 24pdr) ships and their less powerful brethren.

In the twentieth century the smaller 'scouts' and light cruisers were developed for operations with the fleet, the long range trade protection roles being the province of the larger armoured and heavy cruisers. However, in the 1790s the reverse was usually the case: the main fleets and home stations tended to monopolise the services of the big frigates, which were initially in very short supply. They were expensive assets and in the years after the peace of 1783 the 18pdr ships had been rarely commissioned, in line with Middleton's policy of not wearing out the ships that would be most needed in wartime. Therefore in 1792 only three (*Minerva*, 38 and *Perseverance* and *Phoenix* 36s) were in commission, and they had been in action on the East Indies station in the war with Tipoo Sahib, including forcing the surrender of a French frigate caught assisting the Indian prince. However, they were quickly recalled on the outbreak of war in Europe, and for the next few years the Admiralty was very reluctant to allow any 18pdr ships out of home waters. The purchased *Beaulieu*, which was never highly regarded, was an exception, being assigned to the West Indies expedition in 1793, but when Admiral Christian requested more in 1795 he was told in no uncertain terms that they were needed at home.²⁴

TABLE 22 Typical Super-Frigates

Ship	Navy built for	Date launch	Length ft–ins	Breadth ft–ins	Burthen tons	Armament
<i>Indefatigable</i>	British	1794*	160–0	44–4	1376	26 x 24; 8 x 12 + 4 x 42 carr; 4 x 12 + 4 x 42 carr
<i>Endymion</i>	British	1797	159–2	41–11	1238	26 x 24; 14 x 32 carr; 2 x 9 + 4 x 32 carr
<i>Egyptienne</i>	French	1799	169–8	43–8	1434	28 x 24; 2 x 9 + 12 x 32 carr; 2 x 9 + 4 x 32 carr
<i>President</i>	USA	1800	173–3	44–4	1533	30 x 24; 2 x 24 + 28 x 42 carr
<i>Venera</i>	Russian	1808	162–6	42–0	1693‡	30 x 24; 16 x 6; 2 x 6
<i>Saturn</i>	British	1813**	168–0	46–9	1604	28 x 32; 2 x 12 + 28 x 42 carr
<i>Newcastle</i>	British	1813	177–0	44–4	1573	30 x 24; 4 x 24 + 26 x 42 carr

Note. Armament is given number of guns x calibre in pounds in the order – gundeck; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.
 * Date cut down from a 64-gun ship. ** Date cut down from a 74-gun ship.
 † Displacement; the ship later carried 28 x 24; 28 x 24 carr



LIVELY OF 38 GUNS.

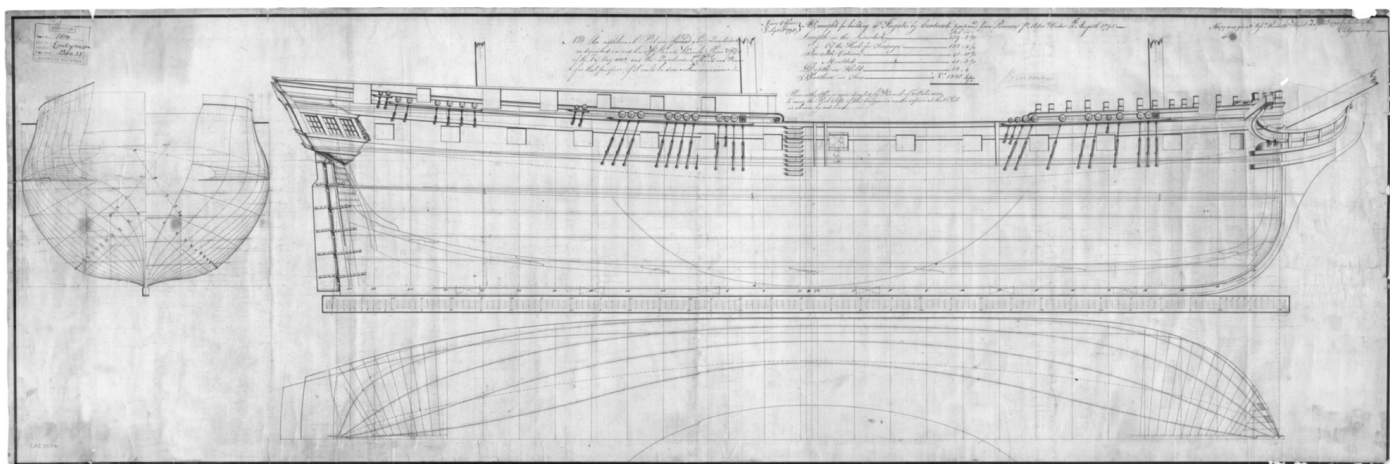
The biggest regular frigates were the 18pdr 38-gun type of which there were two standard designs, the French-derived *Leda* class and the larger *Lively* class. After 1815 many more *Leda* class were built but during the war years the *Livelys* had a better claim to being the standard 38, sixteen being built. They were superb frigates for British purposes, being fast, weatherly and of high endurance (they stowed more than the *Ledas*). It was only the fortunes of war after 1812 that led to the building of many more sisters for the successful *Leda* class *Shannon*, rather than repeats of the defeated *Lively* class *Macedonian*. This is not a standard draught but a half-scale pictorial representation based on one, but it shows a number of details otherwise omitted from official plans. (J8590)

The reason was the British concern with the potential damage to commerce inflicted by large French frigates, of which they had similar numbers. The Admiralty believed it could contain the French main fleets but that frigates, sometimes in squadrons, were always liable to escape from the smaller ports, and did so with great success in the early years of the war. The response was to form what in later terms might be called 'hunter-killer' groups, commanded by the leading frigate captains of the day like Borkase Warren, Edward Pellew, Sydney Smith and Richard Strachan. In 1796 the Channel cruisers comprised three 24pdr, seventeen 18pdr and only five 12pdr ships, the cream of the British frigate force. These ranged up and down the French coasts almost at will, and the large number of French cruisers captured in the early years of the war underlines the success of this strategy.



THE victorious *Shannon* leading her prize, *USS Chesapeake*, into Halifax harbour in June 1813. This engraving after an original by J C Schetky gives a lively impression of the joy – and relief – that this action generated after three straight defeats to the big American 44s. What made the victory sweeter was that the ships were very evenly matched in every respect (except the training of the crews) and was achieved in a matter of minutes. An objective observer might have concluded that gunnery was more important than ship design, but after the war the ‘halo effect’ ensured that many more of *Shannon*’s class were ordered: indeed, a modified version of the *Leda* design incorporating all of Seppings’ structural improvements became the baseline Fifth Rate, now rated 46. By contrast, the larger *Lively* class was replaced by another French-derived hull form

The existence of the French *rasées* meant that at first a 50, or occasionally even a 74, was added to these squadrons, but experience proved the 18pdr frigate a match for French 24pdr ships, and the entry into service of the three cut-down 64s like *Indefatigable* removed any need for such dubious reinforcement. The Mediterranean was allowed a few of the older and smaller 18pdr ships, mostly 36s of the *Flora/Perseverance* classes, but as they commissioned the new ships were added to the home squadrons. However, conditions sometimes forced a change of Admiralty policy, and a French heavy frigate squadron thought to be heading for Newfoundland in 1794 required the transfer of the *Thetis* to the North America station, but even then the other reinforcement, the *Beaulieu*, came from the West Indies.



A DRAUGHT FOR BUILDING A FRIGATE BY CONTRACT PREPARED FROM *POMONE*, PR ADMTY ORDER 11TH AUGUST 1795. NAVY OFFICE, 2ND SEPT 1795.

The first purpose-built 24pdr-armed frigate in the Royal Navy was *Endymion*, based on the lines of the captured *Pomone*. The result was an exceptionally successful ship that for many years was regarded as the fastest ship in the Royal Navy and was still the benchmark for performance nearly forty years after she was built. There was so little perceived need for such powerful frigates that no more were built by the British for more

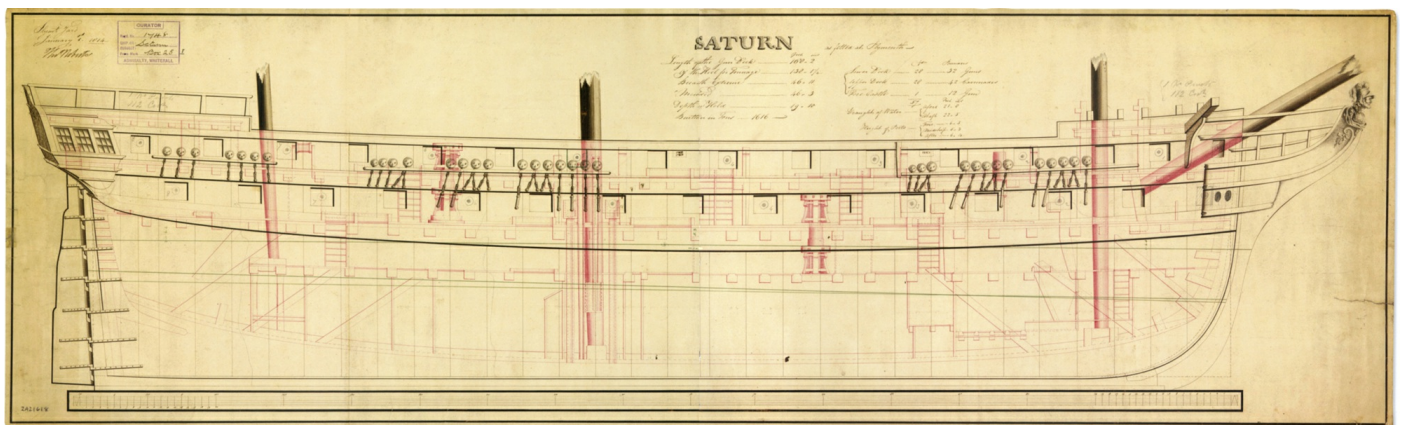
than a decade, and *Endymion* carried 18pdrs for much of that time, only re-shipping 24pdrs in 1813 to meet the American big frigates. The additional carronade port abreast the mainmast is also a product of that refit when the quarterdeck was extended forward by one beam. (J5180)

Within the battlefleet there was also a tendency to differentiate between the 18pdr ships and the smaller frigates. The *Latona* and *Phaeton* 38s, intended for the Mediterranean in 1793 but diverted to the Channel Fleet, were chosen for the difficult task of reconnoitring Brest, being the best combination of speed and power available. This strategic reconnaissance was a prelude to much tactical scouting, these two ships being Lord Howe's pickets for much of the campaign that led to the Glorious First of June. In the battle itself, the smaller frigates were assigned the task of repeating signals, while the 38s rendered more active assistance, *Latona* acting as a diversion for the damaged *Bellerophon* and *Phaeton* towing the crippled *Defence* out of danger.

In this context it is worth pointing out that the oft-repeated notion that battleships did not fire on frigates unless provoked was a custom more honoured in the breach than the observance. In this battle the British frigates were fired on by French ships of the line, and the French frigates even attacked the *Queen*. This cannot be dismissed as French revolutionary contempt for *ancien regime* courtesies, since at the Nile the British 74 *Goliath* attacked the frigate *Serieuse*, which was eventually sunk in retaliation after firing at the *Orion*. Nor were Spanish views any different, since *Lively* and other British frigates were cannonaded by Spanish battleships at St Vincent. In most of the major fleet battles frigates became targets if they so much as ventured within range of the enemy.

This should not be surprising since the new less rigid tactics of the period produced more fluid engagements, in which the frigate's role in battle was often far more active than the mere repetition of signals. At St Vincent *Minerve* was sent into the melee to tow out the crippled *Colossus*, while *Lively*'s task was to secure the prizes, freeing battleships to carry on the fight – and it is noteworthy that both these 18pdr ships were more aggressively employed than their smaller sisters. Dutch frigates at Camperdown were in the thick of the fighting, the 24pdr *Mars* (a *rasée*) standing in the line, while the *Monnikendam* skilfully raked the *Monarch* while the latter was tacking and could not reply. Even the French – hardly the most tactically aggressive of navies – advocated a more positive role for frigates in battle: before his clash with Calder in 1805 Villeneuve issued instructions that his frigates were to act on their own initiative to seek out opportunities to 'hasten the surrender of an enemy's ship, or to cover a French ship too closely pressed ...'.²⁵

While they could not long stand the broadside fire of a battleship, frigates could use their superior speed and manoeuvrability to effect in chase situations, and it is no exaggeration to say that Sir Richard Strachan's frigates ensured his post-Trafalgar victory in November 1805. *Phoenix* not only decoyed the French squadron within tactical reach but, with *Santa Margarita* and *Revolutionnaire*, damaged and delayed the rearmost battleship, allowing the British line to catch up with the fleeing French. Perhaps significantly, the 12pdr *Santa Margarita* was knocked out of the fighting by serious damage, but the 18pdr ships (which included the *Aeolus*) stood up to the punishment far better.



SATURN AS FITTED AT PLYMOUTH. PLYMOUTH YARD, 1ST JANUARY 1814.

The initial British response to the victories of the big American spar-decked frigates was to repeat the successful *rasée* approach of 1794, but the 64 was now too small for the task and there were no suitable ships available. As a result Common Class 74s were chosen instead, but compared with *Indefatigable*, the new design retained two full gundecks, plus a 'flying forecastle'. The concept was promoted by Captain 'Magnificent' Haves, and he was given command of the first to commission, *Majestic*. With 32pdr long guns and 42pdr carronades they were immensely powerful, but needed a gale of wind to sail fast, and generally carried their battery too near the waterline for a frigate. They had a number of innovations, including a single long 12pdr on the forecastle and poop on elevating carriages, designed to dismantle the enemy's top-hammer. (J3453)

For every hour in action, of course, the battlefleet spent many a month of humdrum patrolling, largely in support of the policy of blockade. In the 1790s Lords Howe and Bridport believed that the French Atlantic ports could be as well blockaded from Torbay or Spithead as off the ports themselves, husbanding the main fleet in sheltered waters and relying on inshore squadrons of observation for news of the breakout of French squadrons. These squadrons were usually stiffened with some of the more suitable two-deckers, but the brunt of the work fell upon frigates. The blockade stations were extremely hazardous, of intricate navigation, almost always on a lee shore, and a year-round, all-weather commitment. Ships needed to be very weatherly if they were not to be wrecked; to be at least as fast and manoeuvrable as the enemy if they were to avoid capture; and to be as powerful as possible so that they could not be easily driven from their station. Needless to say, the big 18pdr frigates were the ideal solution and most of the new ships as they commissioned found themselves on Channel Fleet duties.

However, they were in short supply and as much sought-after by admirals who wanted them for their fleets as captains who desired them as commands. Numbers had been greatly increased by French captures, but these did not necessarily fit the requirement. Bridport specifically told the Admiralty in 1798:

The Channel frigates should be strong and in perfect condition. What occasioned my desiring English built frigates arose from the consideration of the boisterous seas they had to encounter and knowing that I have six French built frigates already with me and that I find them oftener and longer in port at a time than our own built frigates.²⁶

Bridport pointed out that they were believed to be faster but were certainly more weakly constructed and needed more maintenance, could stow fewer provisions so were of shorter endurance, and were inconveniently fitted in such details as the lack of an orlop, so were obliged to shift their cables every time they needed to get at the water in the hold.

Even the Channel Fleet commander could not get all he wanted, however. Bridport looked enviously at the Irish station which he believed had only British-built ships. This was not quite true, but Vice-Admiral Kingsmill's squadron at Cork was given some priority in the allocation of big frigates. Not only did he have the Atlantic coast of Ireland to patrol and the shipping in the Western approaches to defend, but Ireland itself was a frequent target for invasion. Ships of the line could not be spared permanently to guard against this eventuality and so large frigates were the next best thing – which is just as well, since Kingsmill's frigates were the only ships to put up much opposition to Hoche's abortive Bantry expedition in the winter of 1796–7, the British battle squadrons being completely wrong-footed.

When the war was renewed after the Peace of Amiens, 18pdr ships were in the majority in the frigate force, so were much more widely employed, both geographically and in terms of duties. Even the most distant stations could boast a few, and in 1805 only the tiny Newfoundland squadron was without one. Furthermore, they were increasingly employed as convoy escorts, a duty which a decade earlier would have been more likely to fall to a 28 or perhaps a 12pdr ship.

As a cruising class the 28-gun Sixth Rate was in rapid decline, the few survivors being largely banished to far-off and minor stations. Those nearer home were usually converted to auxiliaries – mainly troopships, but some became floating batteries during the invasion scare of 1803.

QUALITY VERSUS QUANTITY

FOR most of the age of sail, the Royal Navy and its political masters espoused a belief that seapower was a product of the size of the fleet rather than the quality of its individual units. In the naval architecture of the wooden warship, a 'superior' design was almost inevitably a larger one, and in this respect France's approach was diametrically opposite. From the time Louis XIV decided to build a serious navy, French warships were generally larger and often delivered greater firepower than their British equivalents. Furthermore, they grew in size steadily over time, while the British made only sporadic attempts to catch up when it was felt the disparity had grown too great for comfort – but Parliament was keen throughout the eighteenth century to preserve the numerical superiority over France and even, whenever possible, over the combined fleets of France and Spain.

There were two reasons why the naval administration could take a relaxed view of ship size. The first was the knowledge that British ships were generally stronger and better built than their opponents; in battle they could withstand more punishment, while they could keep the seas longer before they needed dockyard attention. In the realities of sea warfare, both factors tended to outweigh the 'paper' advantages of bigger ships. The second reason was a trust in the superior skills and experience of British crews, who tended to spend more time at sea enhancing their proficiency. This was especially true if the strategy of blockade was properly applied, when their enemies would find themselves with fewer and fewer opportunities for sea-time and consequently a growing disparity in the competence of the opposing navies.

However, there were two breaches of this otherwise consistent British policy: the first by Anson's administrations in the mid-century, and the second by the Admiralty boards of the 1790s. This latter was the more surprising, since Anson's root-and-branch reforms had included the introduction of desperately needed new ship types, like the 74-gun ship and the frigate and not just bigger examples of standard classes as was done in the 1790s. Although the process was begun by his predecessor as First Lord, it was during Earl Spencer's tenure (1794–1801) that a conscious 'big ship' policy was developed. Existing designs were lengthened and new orders were placed for ships of ever-increasing size, often a comparative series of one-off designs to the same specification, perhaps one draughted by each Surveyor with another based on a French hull form.

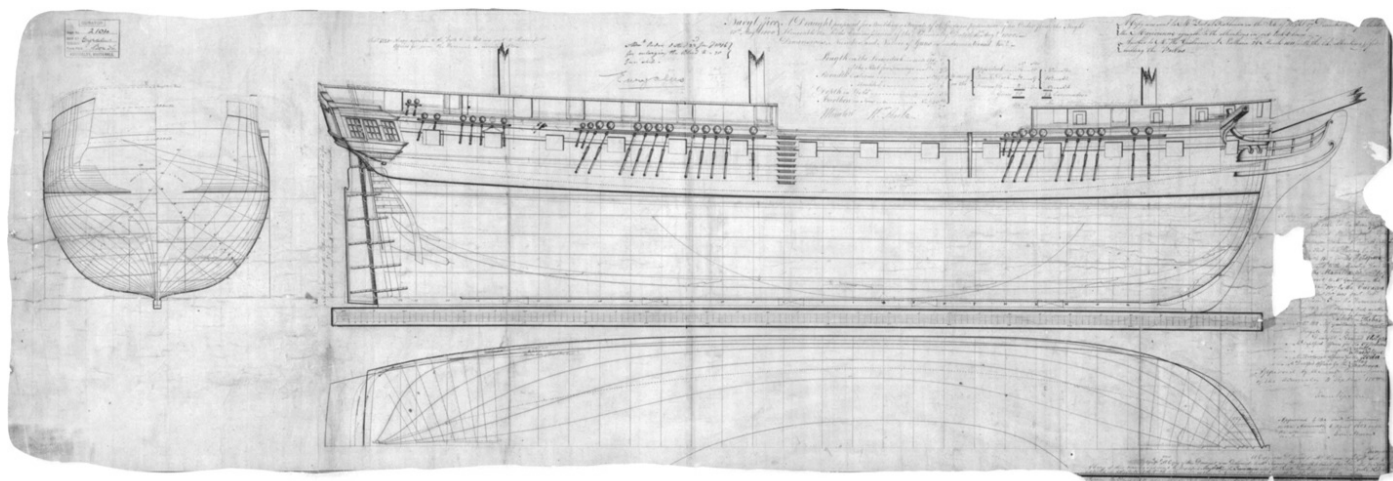
The policy produced some very fine ships, but it was arguable if they were key to the naval successes of the 1790s. Certainly the new administration of Lord St Vincent thought not, and adopted a diametrically opposite approach, building small ships and often reverting to older designs. However, there was a further dramatic change after Trafalgar, when the numbers of ships required grew exponentially in the face of Napoleon's Continental System and the counter blockade. In these circumstances there seemed little point in producing a new design every time a building programme was put in hand, so a de facto policy of standardisation grew up. For some types an existing, well regarded prototype was chosen, and in most cases it was a ship first produced under Spencer's administration. These included the 36-gun *Euryalus* and 38-gun *Lively* classes and the brig *Cruizer*.

Where there was no appropriate model, new designs were allowed, but even here there was a radical departure: instead of each Surveyor producing his own interpretation of a specification, they were instructed to collaborate on a joint design. The best known – and most notorious – example of this process is the forty-strong *Armada* class of 74s, but the principle was also applied for new ships as disparate as the First Rates of the *Nelson* class and the small brigs of the *Crocus* class. The problem of manning this ever-expanding fleet also exerted downward pressure on individual ship size – the smaller the ship, the smaller the crew, so the total number of men raised could only be stretched to more ships if crew numbers were reduced. This led to the even smaller brigs of the *Cherokee* class, and the development of a gunbrig intended for wider deployment, albeit of minimal seakeeping capability.

Historical judgement has been harsh on these designs, but it should be remembered that they were consciously 'economy' ships with some elements of compromise understood and accepted. In the case of the 74s, in order to execute such a large programme it was necessary to place contracts with at least a dozen yards that had never built anything this big before – a situation the pre-war Navy Board would never have tolerated – so problems of build-quality were almost inevitable. Furthermore, they were constructed at a time when the scarcity of 'grown' timber (and especially knees) was driving up costs so substantially that there was intense pressure to develop 'cheaper' alternative systems of fastening; many of these experimental, and ultimately inadequate, techniques were applied to ships of this class, leading to complaints of weakness.

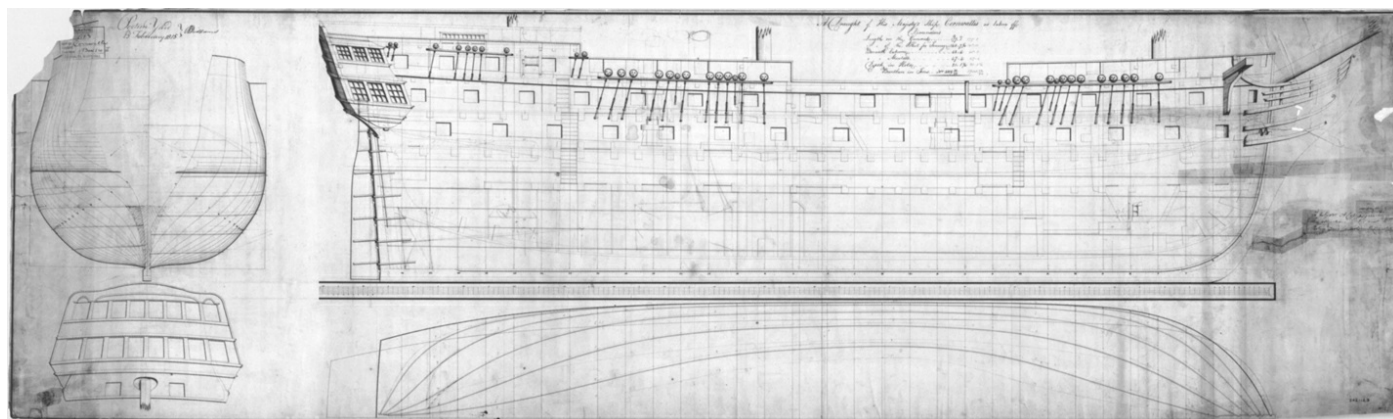
The expansion of construction programmes well beyond anything previously known strained both shipbuilding capacity and timber resources. This forced the Navy Board to look beyond the usual coterie of merchant yards and, indeed, outside the country – and in some unlikely places, as far apart as North Russia and Rio de Janeiro. Nothing came of the more outlandish projects, but small craft were produced successfully in Bermuda and by 1815 India was building ships as large as 74s. These of course employed local timbers – respectively, cedar and teak – but at

home the escalating cost of traditional hardwoods prompted the large-scale purchase of 'fir' (a catch-all term applied to many species of softwood) in the last decade or so of the war. Softwood was already an established response to emergencies since ships so built could be completed more quickly – for example, the six frigates ordered in 1795 had been ready for service in about two-thirds of the time needed for their hardwood sisters. Fir was increasingly used for patching and repairs, but for new-building it remained a last-ditch recourse, since it was known to produce structurally weaker ships of very limited lifespan.



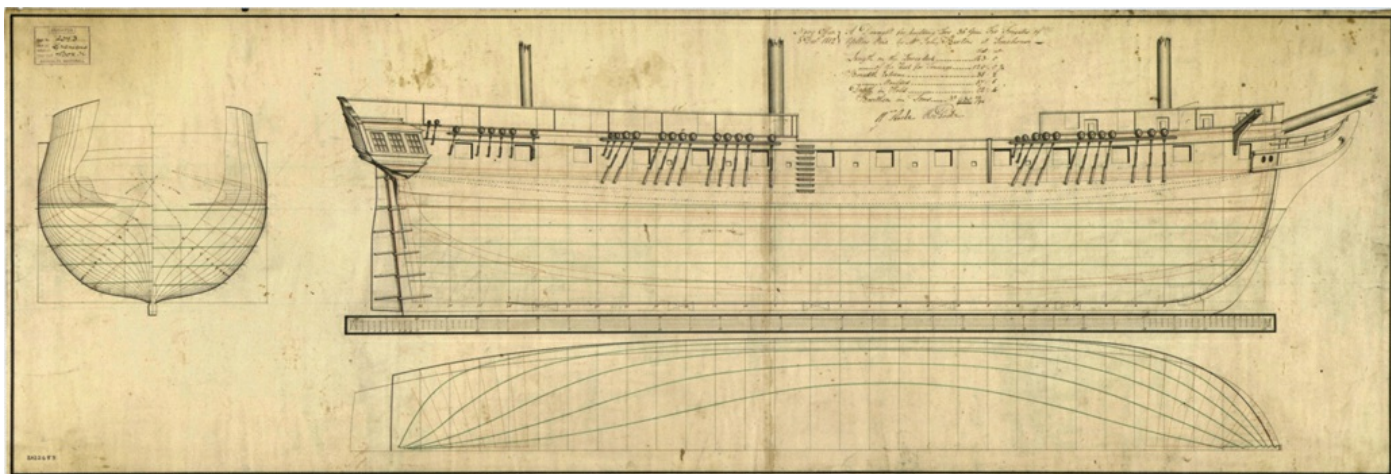
A DRAUGHT PROPOSED FOR BUILDING A FRIGATE OF 36 GUNS IN PURSUANCE OF AN ORDER FROM THE RIGHT HONORABLE THE LORDS COMMISSIONERS OF THE ADMIRALTY, DATED 16TH AUGT 1800. NAVY OFFICE, 18TH AUGT 1800.

After 1803 the war was effectively fought with large numbers of ships built to selected 'standard' designs. For frigates the most numerous were the 36-gun ships of what was originally the *Apollo* class, but which became the *Euryalus* class after the early loss of the name-ship. This damaged and much annotated draught refers to most of the twenty-six vessels built to the design, and alterations show the gradual supplanting of long guns by carronades on the upperworks. They were excellent all-round cruisers, combining speed, seakeeping and firepower in a moderate-sized hull. (J5673)



A DRAUGHT OF HIS MAJESTY'S SHIP *CORNWALLIS* AS TAKEN OFF PORTSMOUTH YARD 25TH FEBRUARY 1815.

The huge programme of forty 74-gun ships built to the 'Surveyors of the Navy' design required the Navy Board to look beyond its normal suppliers, and many orders were placed with builders who had little or no experience of building large ships. Almost inevitably, this produced problems of quality control, but by far the most successful – and certainly the most distant – extension of construction resources was to India, where the local teak proved a superb shipbuilding timber. After many delays in setting up the process, the first 74-gun ship was laid down in 1807 at Bombay, and the *Cornwallis* followed as soon as the first ship was completed to the Navy's satisfaction. On her delivery voyage to Britain, *Cornwallis* was involved in a close pursuit of USS *Hornet*, keeping the speedy ship sloop in sight for three days. *Hornet* eventually escaped after jettisoning her guns and most of her stores, but the episode gives the lie to reports that the Surveyors' class were poor sailers. This draught was prepared after the ship reached Britain. (J2676)



DRAUGHT FOR BUILDING TWO 36 GUN FIR FRIGATES OF YELLOW PINE BY MR JOHN BARTON AT LIMEHOUSE. NAVY OFFICE, 3RD DEC 1812.

Frigates were built of softwood as early as 1757, when it was discovered that in an emergency ships could be launched within three months of laying the keel. Thereafter it was a tactic occasionally resorted to when there was a pressing need for more ships – in 1795 six were ordered, and the small 32s of 1804 also utilised fir. However, the biggest programme developed as a response to the American declaration of war in 1812, which eventually produced five 24pdr ships based on *Endymion*, eight of the existing 38-gun *Leda* class, and ten of the 36-gun *Granicus* class shown here (not to mention the huge double-banked frigates *Leander* and *Newcastle*). Although it is not easy to see on the draught, fir ships were identified by a flat ‘square tuck’ stern, but were otherwise identical to their hardwood half-sisters. The one exception was the *Scamander* class, which was a modified version of the *Euryalus*. Fir hulls were noticeably lighter than those of oak, so fir ships either floated higher or required more ballast to bring them to the designed waterline; this tended to make them over-stiff, so for this class the depth in hold was reduced. Fir ships were often very fast but somewhat leewardly and of course they were short-lived – the earlier ships of Baltic fir were reckoned good for five years, but the 1812–13 ships of North American timbers had very short careers, the yellow pine ships being the worst of all. (DR2073)

The existence of a stockpile of softwood made possible the final, extraordinary expansion of the shipbuilding programme after the USA declared war in 1812. The sudden requirement to blockade a very long and indented coastline, and to counter the powerful American spar-decked frigates, led to orders for two huge 50-gun frigates of a new type, five 24pdr-armed 40s, eight 38s and ten 36s. It was assumed that the need for these ships would be short-lived, so they were contract-built of various species of pine supplied by the Navy Board to the merchant yards. The first of them was entering service nine months after the initial order (later ones were completed in as little as six months), and such was the tempo of construction that crews could not be found fast enough, prompting the Admiralty to slow down the rate of fitting out. For an industry supposedly fully committed already, this was quite an achievement.



A model of a brig of the *Cruizer* class: judged by numbers built (over 100), they are one of the most successful warships of the sailing era. They were fast, seaworthy and capable of service in every theatre. Unlike the armament shown on this model, they usually carried sixteen 32pdr carronades and two 6pdr chase guns, making them very powerful for their size. Unlike many British warship types, they were relatively large by international standards, and this is probably why the smaller Cherokee class was introduced to make up the numbers. (D4072-5)

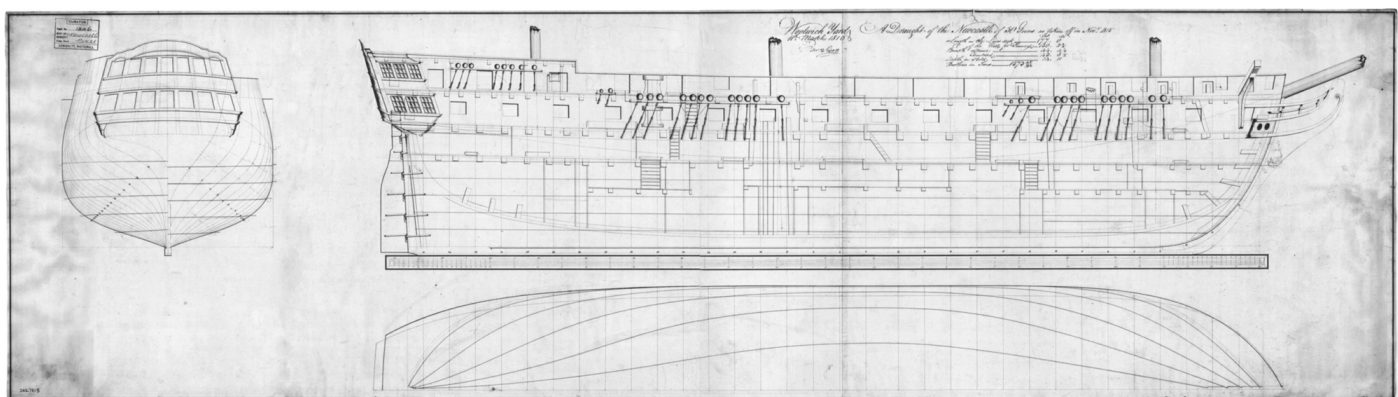
Officially, these ships were regarded as expendable. The whole programme was extraneous to the long-term needs of the Navy, which in parallel continued to build a fleet by traditional methods intended to secure post-war dominance – indeed, after 1815 the softwood ships were retained in commission until worn out, in order to husband these more valuable units laid up as a strategic reserve. It is the clearest dichotomy between an immediate need for quantity and the longer-term benefits of quality.



THE *rasée* 74s had no opportunity to test themselves one-to-one against the American 44s they were designed to counter, but some indication of their potential was provided by an action in February 1814 between HMS *Majestic* and two French frigates, which ended in the capture of one, *Le Terpsichore*. Later the ship was part of the squadron that captured the USS *President*, but was not fast enough to keep up with the action, all the work being done by the twenty-year-old *Endymion*, the Royal Navy's first purpose-built 24-pdr ship. (PY4081)

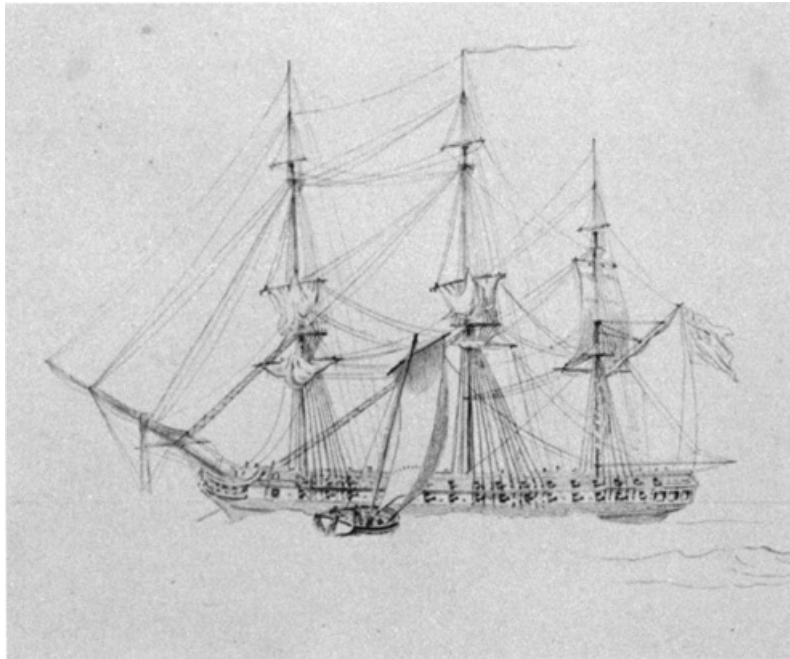
Although there were still many in service, the 12-pdr frigate was also diminishing, both in total numbers and as a proportion of the frigate force. Naturally, they tended to disappear from the main fleets first: there was only one in the Channel Fleet in 1805, and none was present at Trafalgar, although the Mediterranean Fleet had three on strength. The big ex-French ships were still quite well regarded and tended to see more active service than the old British 12-pdr frigates, but all were more likely to be found on the East and West Indies stations than nearer home – and increasingly so as the war progressed.

The final major redeployment of frigates was occasioned by the outbreak of war with the United States in 1812. The shock victories of the big American spar-deckers forced the Admiralty to hastily assemble a force of the largest and best frigates available, pending the completion of the crash programme of similar ships. They also took the unprecedented step of prohibiting single frigates from engaging the American 44s, a much-criticised decision but, however mortifying to the Navy's pride, a sensible move. The development of lightweight 24-pdrs that might replace 18-pdrs on the main deck of frigates was also speeded up, but few frigates so armed went to sea before 1815. In the end this war – and indeed the wider war in Europe – was settled by numbers, operating through a coast-wide blockade, rather than the ability of a few superior ships to win individual victories.



A DRAUGHT OF THE *NEWCASTLE* OF 50 GUNS AS TAKEN OFF IN NOV 1815. WOOLWICH YARD 11TH MARCH 1816.

The *rasée* 74s were too different from a genuine spar-decked frigate to provide the Royal Navy either with a useful trial of the type, or (because they were so much more powerful than any frigate) to supply the much-wanted morale boosting victory in a 'fair fight'. As a result two ships were ordered to an identical specification but by different designers, the Navy's 'official' team producing the *Leander* and the controversial emigré Barrallier, the *Newcastle*. Rapidly built of fir, both ships proved very fast, although *Leander* was more weatherly. The gangways were armed, as the US frigates had been originally, and apart from light scantlings they were in every way a match for their intended foes. Only a signalling bungle saved the *Constitution* from attack by both ships and the big 18pdr-armed *Acasta* in 1815. This draught shows the addition of an upper cabin for her postwar role as a flagship, replacing the old-style 50-gun two-decker. (J3606)



THERE are few known representations of the big 'double-banked' frigates built to match USS *Constitution* and her sisters in the War of 1812, but this detail from a Nicholas Pocock engraving is one. Published in June 1815, it is labelled 'frigate of new construction 60 guns' and must be a portrait of the *Leander* which was distinguishable from *Newcastle* by the unique feature of upper deck ports positioned exactly over the main battery ports instead of *en echelon* as was conventional. (PAF5008)

SLOOPS OF WAR



Like so many nautical terms the word ‘sloop’ is protean in meaning. Depending on context it can refer to a single-masted rig or a ship so rigged, or a small warship. In the Royal Navy it was also used as a rating – in effect, any vessel in the charge of an officer with the rank of Master and Commander (or Commander for short), such as a bomb or fireship when cruising, or even a ship of the line when armed *en flûte* as a troopship or storeship. For the purposes of this section, the last usage can be ignored; furthermore, although a handful of early naval sloops were sloop-rigged, by the 1790s the type name was not related to rig.

The ancestry of the sloop of war can be traced back to the small craft – often little more than large boats – that accompanied sixteenth and seventeenth century fleets. In the eighteenth century, sloops grew in size and developed more ship-like characteristics, at the same time assuming more independent cruising roles. They were almost all two-masted, rigged either as a ketch with main and mizzen, or as a snow with fore and main. The armament was carried on an exposed weather deck (although they often had small decks fore and aft), but in the hold there were only platforms. They were still very lightly built and were generally expected to be manoeuvrable under oars as well as sail.

However, in the 1750s, when the frigate form was being introduced for Fifth and Sixth Rates, sloops also underwent a design revolution. They became larger and less sharp lined, acquired an almost continuous lower deck, a full quarterdeck and forecastle, and adopted the three-masted ship rig. Not surprisingly, for a short while these vessels were called ‘frigates’ in official correspondence. They were usually around 300 tons and were armed with fourteen or sixteen 6pdrs, although a few larger vessels carried eighteen; needless to say, the introduction of carronades added six or eight of the smaller calibres to the quarterdecks and forecastles of the ship sloops. They proved more seaworthy, more habitable, longer-ranged and better armed than the old two-masted type, and the ship rig must have conferred some advantages in battle – three masts would have made them less vulnerable to damage aloft than two. But the one quality the new-style sloops did not possess was speed.

As a result, the two-masted sloop reappeared in 1778 after barely a generation’s moratorium on their construction. However, the new type was radically different from both ship sloops and the older snows and ketches. The rig was described as a ‘brig’ – a term of disputed etymology, but possibly a shortened form of ‘brigantine’; the main difference from the snow was that the gaff headed fore-and-aft main sail was far larger, since its foot was extended by a long boom. The hull form was also very sharp, with a lot of deadrise in the midship section, and the layout was flush-decked. Small craft features, like the exaggerated sheer, tiller worked on deck, and a lack of quarter galleries, suggest a vessel scaled up from a cutter rather than reduced from a ship sloop.

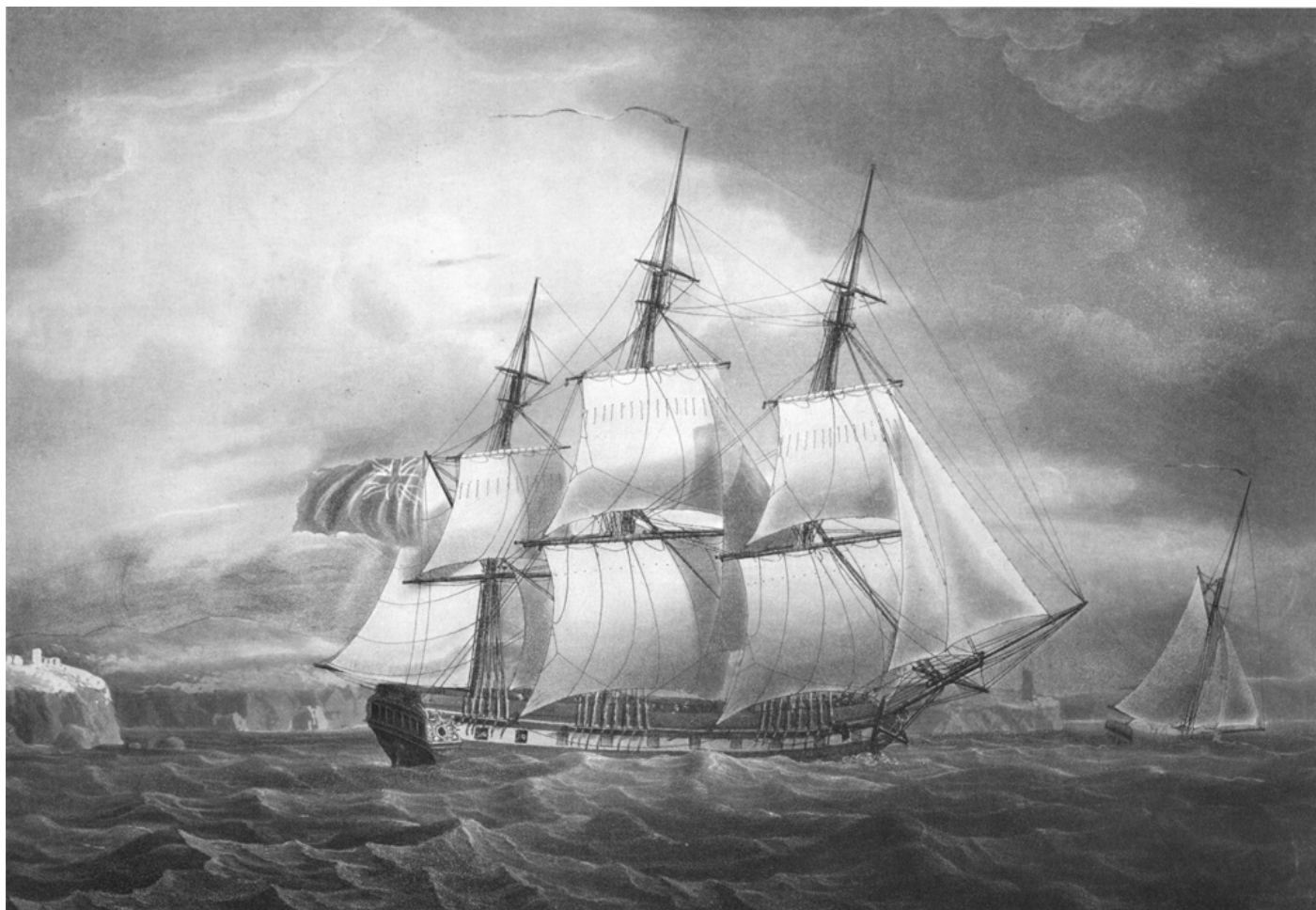
There are four pieces of evidence to support this theory:

1. Naval cutters had reached 180 tons a year or so before the first brig was ordered. These were the largest cutters designed by the Royal Navy in the eighteenth century, strongly indicating that the area of canvas required in a single-masted vessel of this size was just too big to be manageable; these cutters were also uprated to ‘sloops’ on completion;
2. The first brigs were only slightly larger and as designed carried the same armament of ten 4pdrs;
3. The earliest were initially rated simply as ‘brigs’, suggesting a Lieutenant as commanding officer, as in cutters; armament was later increased and they became ‘brig sloops’ under a Commander;
4. The Navy Board seems to have called on the design experience of merchant builders for early brigs, as they had done with cutters; in many cases, cutters and brigs were constructed by the same specialist builders.

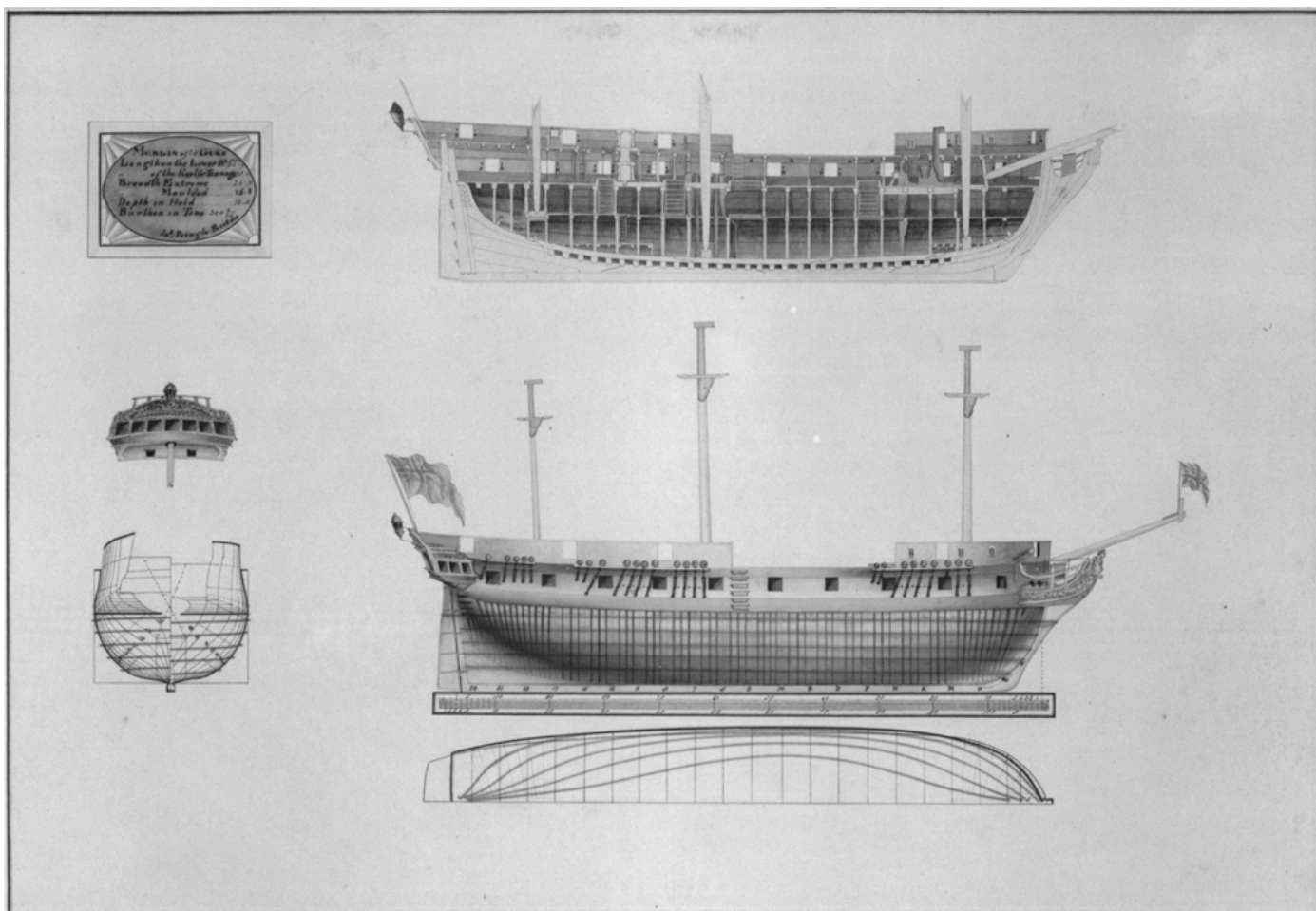
Brigs soon grew to be much the same size and gun power as ship sloops, but a clear dichotomy in their employment is apparent after 1793. Ship sloops were rather like post ships in that they were seaworthy and more habitable than brigs but simply not as fast or weatherly. They could be easily overtaken by far more powerful frigates and a number were captured under these circumstances: *Alert* and *Hound* in 1794, *Peterel* in 1798, *Cyane* and *Ranger* in 1805, and *Favourite* in 1806. Moreover, their sluggish sailing could result in the loss of other ships, like the *Africaine* in the Indian Ocean in 1810, surrendered because the British commodore could not assemble his force in time to prevent it, largely due to the slow progress of the *Otter*.



LIKE the frigate, the basic layout of the ship sloop was established in the mid-1750s and did not change much for half a century, although it did grow in size by about 25 per cent. This model of the *Atalanta*, 16 guns, of 1775 demonstrates their main features, but on later ships the row of ½pdr swivel guns along the rails would be replaced by four or eight small carronades. By the 1790s the main battery of 6pdrs tended to be replaced by 32pdr carronades. (D4085-3)



ALTHOUGH many classes of British ships were, in the official phrase, ‘built to the lines of’ a particular French prize, this does not mean ‘copied’. Underwater, the hull shape may have been similar (although sometimes scaled up or down in size), but the structure, fittings and topside appearance was entirely British. With regard to this last feature, the ship sloops of the *Echo* class were probably a unique exception, in that the stern gallery design was distinctly French. Although the hull design is officially attributed to the Surveyor Edward Hunt, the lines are a reduced version of those used for the exactly contemporary *Tisiphone* class of fireships, which are based on the French frigate *Panthère* captured in 1745. Curiously, the stern and quarter galleries of the *Echo* class closely imitate those of this prize, right down to details of the decorative work—as accurately portrayed in this aquatint by Robert Dodd. (B2587)



MERLIN OF 24 GUNS.

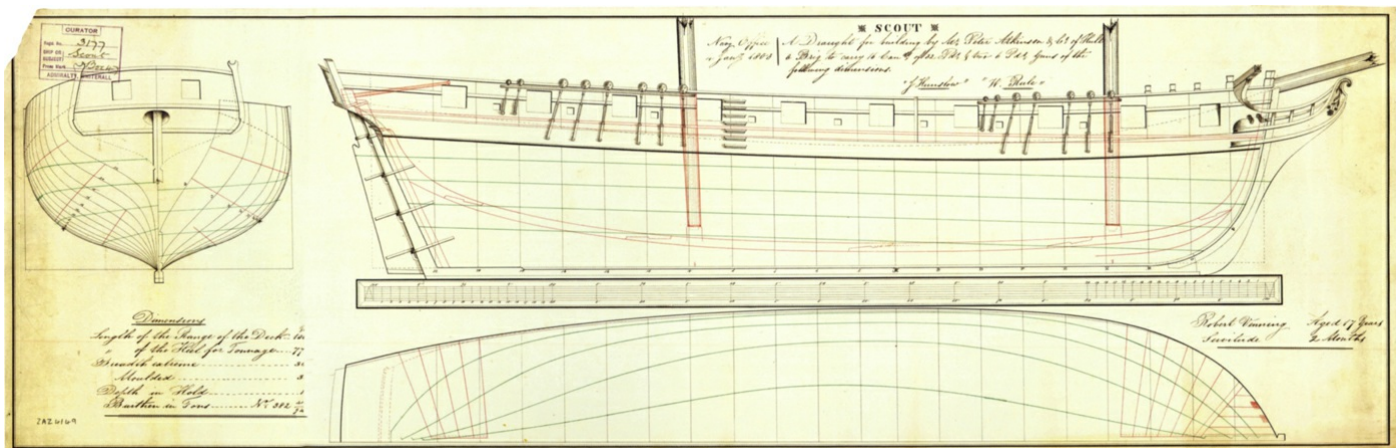
One of a series of half-size pictorial plans produced by James Pringle based on draughts and/or models, this one is curious in that the dimensions in the cartouche (clearly entered later) refer to an earlier ship of that name, while the drawing accurately represents the *Merlin* class of 1795 – or to be exact, the 1802 group with solid barricades and a slightly raised waist stringer. As the draught shows clearly, the quarterdecked sloop was effectively a miniature frigate, and was probably the smallest type that could be expected to operate independently for any length of time. A covered main deck made them drier and more habitable than sloops with a flush weather deck, but the higher side made them leewardly. The lines emphasised seakeeping rather than speed, and a capacious hull gave them endurance. They were safe protecting convoys from most privateers, but were very vulnerable to frigates, which could out-gun and out-run them. (J8588)

This failing was well known, both inside the fleet and to civilians. A contemporary pamphlet called *Remarks on the Form and Properties of Ships* criticised ship sloops as ‘the worst kind of ship that can be imagined, either for peace or war, being not fit for attack, nor capable of defence even by running away.’²⁷ As a result it was rare for any ship sloop of the traditional type to be employed by the main fleets, and certainly not in frontline roles. They were not weatherly enough for the Channel blockade, and were not fast enough or powerful enough to act as scouts for the battlefleet. When attached to fleet commands, they were usually to be found detailed to convoy merchantmen within that command’s jurisdiction. They had a further drawback as a fleet cruiser, as Byam Martin discovered when commanding the *Tisiphone* in Hood’s fleet in 1793: their masts were too short to make adequate repeating ships.²⁸ It is perhaps indicative of the official view of the quarterdecked ships that they tended to retain their long 6pdrs on the main deck where the larger brigs were quickly converted to 32pdr carronades: the ship sloops seem to have been regarded as the smallest viable independent cruiser (for which a mixed armament was more useful), and patrol and convoy work, especially on more distant stations, was their usual lot for most of the war.

Almost all the sloops attached to the Channel Fleet in the early years of the war were brigs. This was true of the detached squadrons as well as the main force: *Kingfisher* was with Cornwallis in 1795, *Childers* with the Quiberon expedition of the same year, and *Kangaroo* was the only sloop present in Warren’s clash with Bonpart in October 1798. High-profile forces like Kingsmill’s Irish squadron had almost all brigs amongst its sloops, in contrast to Duncan’s Cinderella fleet in the North Sea that had many ship sloops (perhaps reflecting its heavy workload of convoys, and many small ports requiring blockade).

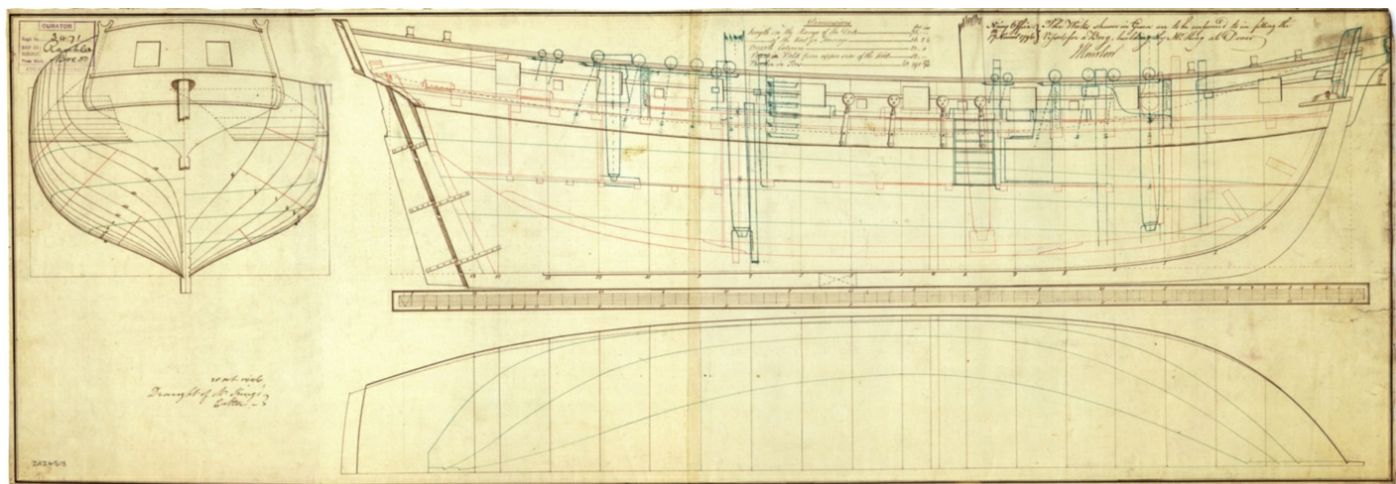
There were two significant, and very interesting, exceptions to the main fleet ‘prohibition’ on ship sloops. The Channel Fleet under Lord Howe contained a number of sloops which had been built during the American War as fireships of the fast and fine-lined *Tisiphone* class. Howe was an advocate of the fireship and was instrumental in the reintroduction of this type in the 1780s, which raises the intriguing possibility that they were in his fleet in the 1790s with similar employment in mind. They could be converted quickly and without the resources of a dockyard; one, the *Vulcan*, was certainly expended at Toulon in 1793 in her intended role, but the Channel Fleet had no real opportunity for fireship attack.²⁹

The other type of ship sloop allowed a major fleet role in the 1790s was a new form of flush-decked vessel, initially acquired entirely by capture but from 1797 purpose-built as well. These latter were essentially brig hull designs given three-masted rigs, whereas most of the French prizes were more ship-like but, lacking substantial upperworks, were more weatherly and usually faster. The Channel Fleet’s *Scourge* was of this design, while the 500-ton *Bonne Citoyenne* was a particular favourite; she proved a very effective scout for the Mediterranean Fleet leading up to the battle of St Vincent, and in most respects was a good substitute for a frigate.



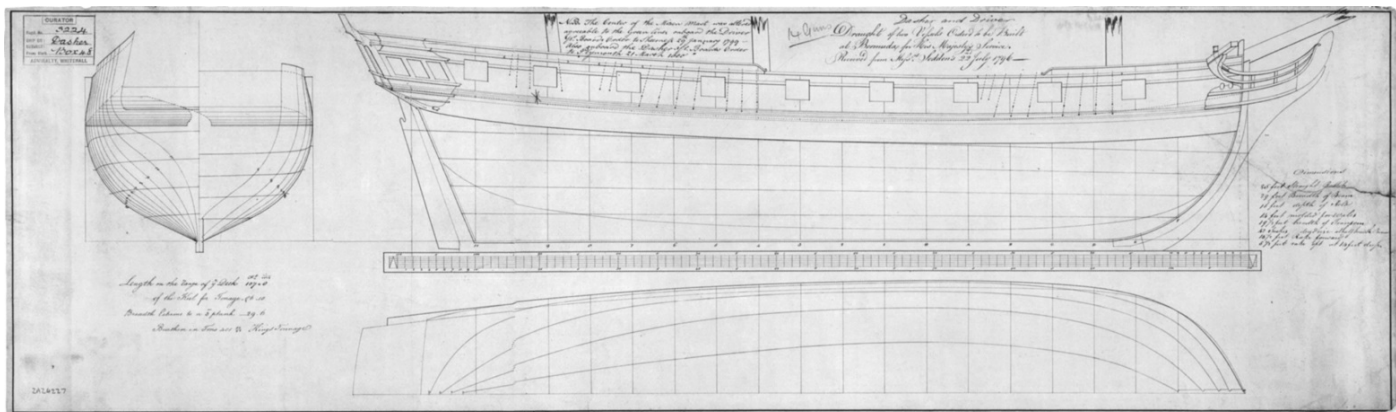
NAVY OFFICE 17TH NOVEMR 1796. THE WORKS SHEWN IN GREEN ARE TO BE CONFORMED TO IN FITTING THE VESSEL FOR A BRIG, BUILDING BY MR KING AT DOVER.

Rambler purchased while building as a cutter, clearly shows the design origins of the Royal Navy's brigs, all the earliest examples being built by specialist South Coast cutter-builders, like King at Dover. While retaining fine-lined cutter hull forms, the Navy felt that they were too large to safely carry all their canvas on a single mast. Furthermore, the brig rig offered real benefits in battle, not only dividing the sails between two masts and cutting the risk of a single crippling hit aloft, but providing square canvas that could be backed, giving brigs a potential manoeuvring advantage in action. (J5123)



SCOUT. A DRAUGHT FOR BUILDING BY MR PETER ATKINSON & CO OF HULL A BRIG TO CARRY 16 CARRDS OF 32 PDRS & TWO 6 PDR GUNS... NAVY OFFICE, 4TH JANRY 1803.

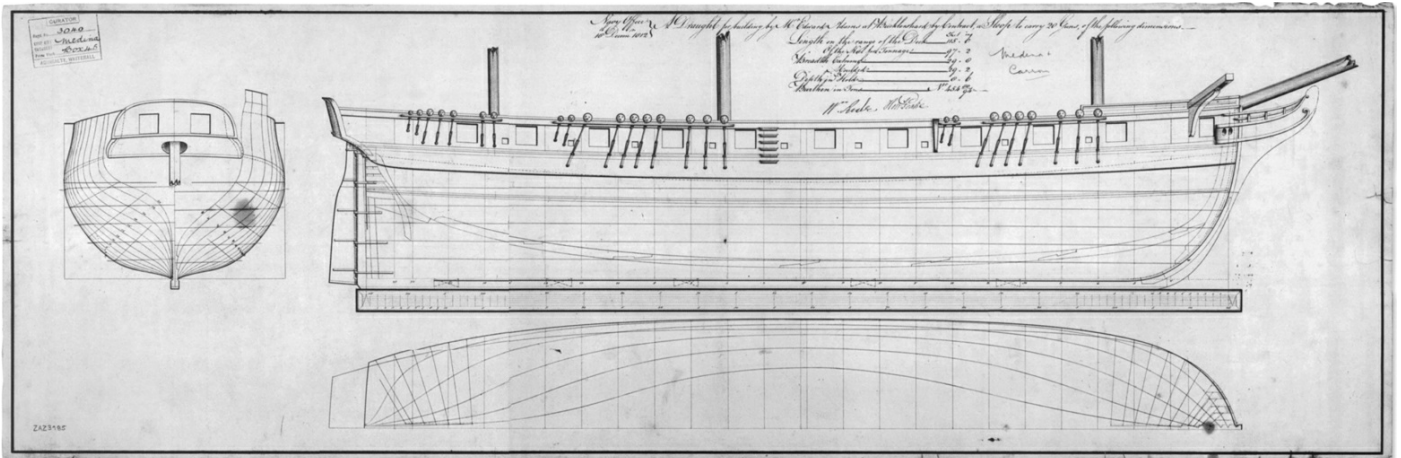
If numbers reflect satisfaction then the 18-gun brigs of this *Cruizer* class must be among the best sailing warships of all time. They were certainly the largest class built to a single draught, with over 100 completed, plus four ship-rigged versions; a post-war 'stretched' version was also built. More than any other type they reflect the burgeoning commitments of the Royal Navy in the post-Trafalgar era, which required some naval presence off most of the ports of the Continent and the European overseas possessions. In service, they were regarded as fast, very powerful for their size and, although not very comfortable for long-range cruising, were capable of being deployed anywhere on the world's oceans. Their reputation suffered during the War of 1812, when some were poorly manned, but their defeats mainly reflected the superiority of the ship rig in combat and not an inherent design fault. (J4287)



DASHER AND DRIVER. DRAUGHT OF TWO VESSELS ORDERED TO BE BUILT AT BERMUDA FOR HIS MAJESTY'S SERVICE. RECEIVED FROM MESSRS SEDDEN'S 22ND JULY 1796.

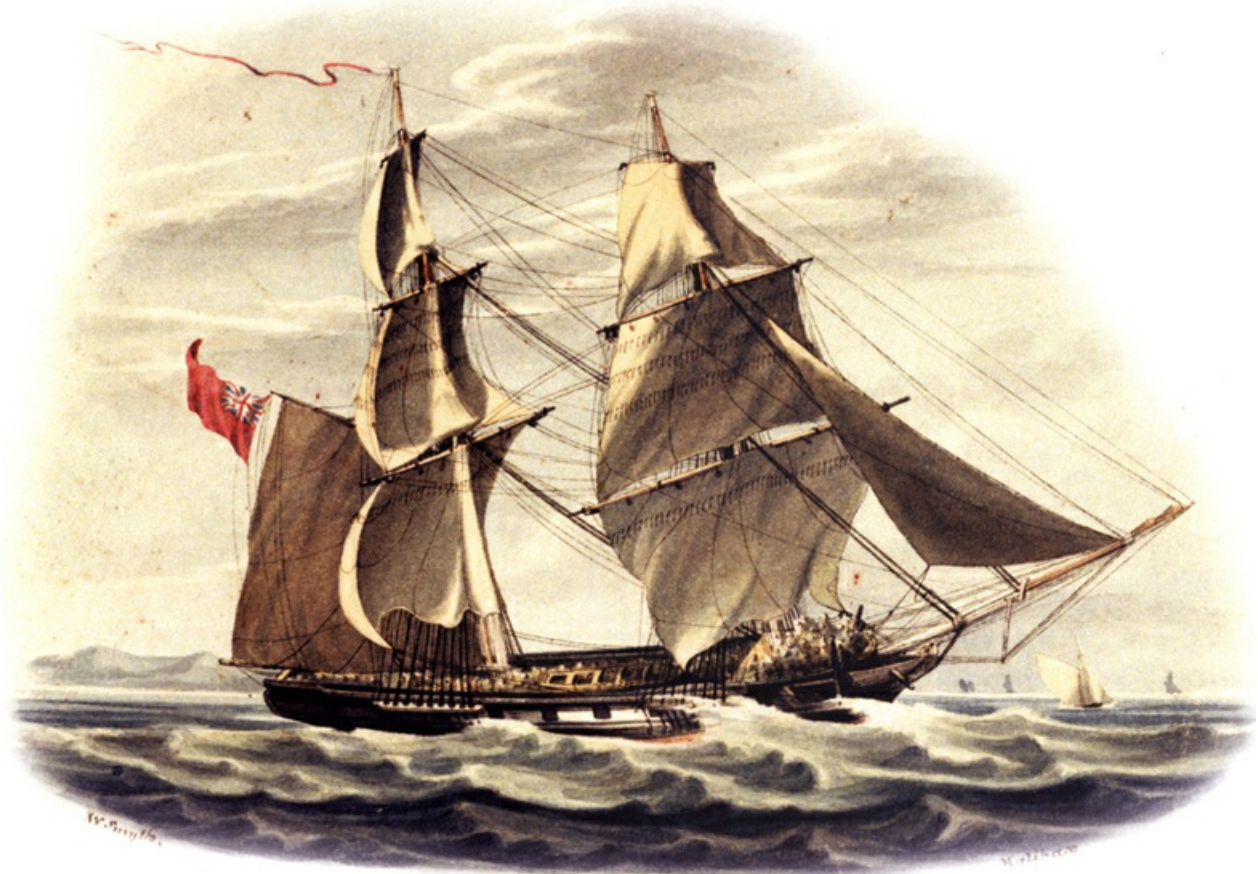
The Admiralty began the search for shipbuilding capacity outside Great Britain early in the war. At Bermuda there was an indigenous tradition of fast-sailing craft (it can claim the origin of the modern 'Bermudan' masthead rig) which had recently been brought to the attention of naval

officers. The islands had been surveyed by Captain Hurd, who successfully advocated its adoption as a fleet base. The Bermudas possessed resources of a species of cedar which turned out to be an excellent timber for small-craft construction. As a result a number of sloops and advice schooners were built in the islands, beginning with this pair of sloops (it was said that Hurd first employed them to train local pilots for the fleet). Design-wise, they began life as brigs, with the typical sharp hull form and flush deck – somewhat disguised by the ‘big-ship’ details of headrails, hancing for non-existent forecandle and quarterdeck, and false quarter galleries. However, at 400 tons they were large for a two-masted rig, so became ship sloops. The conversion of other large brigs to ships at about the same time introduced the Royal Navy to its own flush-decked ship sloops. (J4558)



A DRAUGHT FOR BUILDING BY MR EDWARD ADAMS AT BUCKLERSHARD BY CONTRACT A SLOOP [MEDINA] TO CARRY 20 GUNS OF THE FOLLOWING DIMENSIONS. NAVY OFFICE, 18TH DECEMBER 1812.

In terms of new building, after about 1805 the ship sloop tended to become eclipsed by the brig, which was cheaper and required a smaller crew. However, during the War of 1812 the big American ship sloops won a string of victories over the standard British brig sloops, and a class of similar vessels was deemed necessary. The best prototype was the ex-French *Bonne Citoyenne*, long a favourite ship in the Navy, but the resulting design was actually a reduction in dimensions, which was the source of much criticism at the time and since. When first commissioned they were formally listed as 20-gun Sixth Rates, but as the draught suggests, they were thought of as flush-decked sloops, and rerated as such in 1817. One of the class, *Levant*, was one of the last prizes of the USS *Constitution*, although she was recaptured shortly afterwards. (J4388)



THE Cruiser class brig *Sparrowhawk* in a watercolour of about 1820. (PW5966)

It is instructive to look at the relative development of the three types of sloops of war in the Royal Navy of this period. (See [Tables 23](#), [24](#) and [25](#).) The flush-decked ships grew in numbers in the French Revolutionary War just as the quarterdecked ships declined, reflecting the fleet concerns of the period, and the willingness of the Spencer Admiralty to back innovation in ship design (only one quarterdecked type was ordered after 1795). With sloops, as with so many other classes, a regression began with the St Vincent administration; the 1802 programme included

fourteen quarterdecked ships to a design of 1795, and succeeding admiralties built even more. This period was obsessed with the threat of invasion, and the good defensive qualities of the quarterdecked sloop may have seemed a better bet in the circumstances; certainly new building declined with the post-Trafalgar change in priorities. The flush-decked sloop also staged a small recovery towards the end of the war, thanks to the victories of the big American ship sloops, forcing the construction of similar ships.



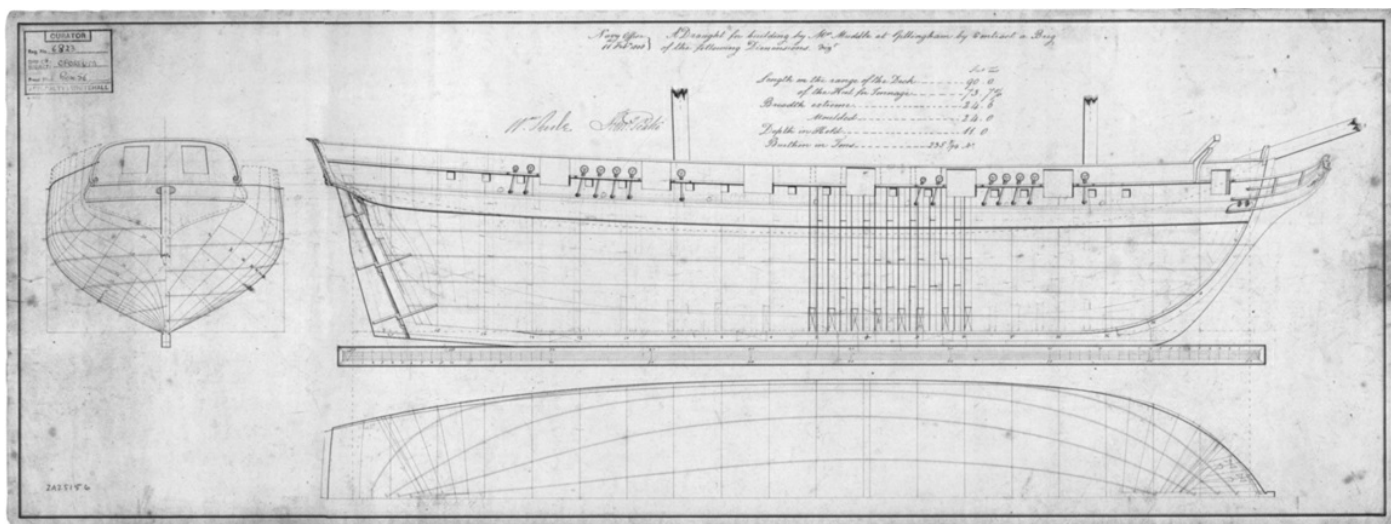
In the absence of sufficient frigates, smaller French ports were sometimes patrolled by sloops, although the poor sailing of the ship-rigged classes made this a perilous strategy if faced with superior force. Just such a scenario arose on 6 February 1800 off St Malo, when the ship sloop *Fairy* and brig *Harpy* encountered the newly completed French frigate *Le Pallas* coming out of the port. Two sloops were no match for an 18pdr-armed frigate, but if they retreated they ran the risk of being captured individually so they opted to fight as a team. Remarkably, they sustained a two-hour combat with relatively few casualties – the crew of the frigate was clearly inexperienced – until British reinforcements arrived in the shape of the frigate *Loire* and two smaller consorts. After a running battle, in which the *Harpy* proved a better sailer than *Fairy*, the French ship was forced to surrender. (PY7968)

Brig sloops, on the other hand, grew relentlessly in numbers during both wars. They were found capable of discharging a very wide range of duties, associated with both a fleet role and trade protection. Once rearmed with carronades they enjoyed one of the highest ratios of firepower to tonnage of any warship type. They also possessed both speed and seakeeping (although they were far from comfortable ships for long service), and were relatively shallow draught so could be used inshore where the war was increasingly fought – at first in anti-invasion actions and then enforcing the blockade in every creek, inlet and island where Napoleon's Continental System was supposed to hold sway.

Brigs were already the Navy's maids-of-all-work by 1806, but thereafter the huge programmes of 18-gun *Cruizer* and 10-gun *Cherokee* classes made Brig Sloop the largest single category in the Navy List. More than any other ship type, the brig sloop reflects the Navy's mushrooming commitments. After 1806 the conflict became increasingly an economic war of attrition; most of the coastline of mainland Europe came under the influence of Napoleon's Continental System of trade exclusion, and the British in retaliation declared the whole continent blockaded. International law as understood at the time required a blockade to be enforced if it was to be legally binding on neutrals, so every small port required a British force to monitor its activities – and more often than not the force was one or more brigs. Denmark, whose fleet was neutralised in 1807, carried on the war with gunboats and small craft, and many a hard action was fought in the narrow waters of the Norwegian fjords and Baltic skerries between these experienced and resourceful squadrons and British mosquito fleets of brig sloops and the smaller gunbrigs. Similarly, the indented and island-strewn coasts of Greece and the Adriatic required numerous small squadrons, which saw much more action than the larger warships, thanks to the successful blockade of the French main fleets and the sea control established by squadrons of British frigates. The British army's campaign in the Peninsula after 1808 was largely supplied from the sea, and this added further to the Navy's escort and inshore support duties, while campaigns from the West Indies to Indonesia, and the Indian Ocean to the Baltic all employed brig sloops in large numbers.

As noted above in relation to the 'Surveyors of the Navy' class 74s, standardisation can mean mediocrity, but in contrast the *Cruizer* class was a decided success. A single prototype was built in 1797 and not repeated until 1802, but by then the ship had a superb reputation – 'for she

sails like the devil', as one correspondent to the *Naval Chronicle* expressed it. The huge class that followed were generally regarded as satisfactory in all their multifarious roles, but their later reputation suffered as a result of defeats in the War of 1812, although undeservedly since the victors were larger American ship sloops. The *Cherokee* class were less highly regarded and quickly became known as 'coffin brigs', owing to the large number that were wrecked or foundered. A close analysis of the circumstances of these losses suggests no obvious design fault, but they were probably too small for the go-anywhere duties required of them. This is supported by the opinion of Lieutenant William Bowers, who had twelve years in *Helicon* and *Leveret*, and felt the class had been 'unduly vituperated'. He agreed that they were wet and cramped, but was convinced that 'when properly handled' they were as safe as any flush-decked vessel in the Navy. James says that they were dull sailers, but the fact that the class continued to be built for fifteen years after the end of the war – and many served as packets, where speed was of the essence – suggests that at worst this lack of performance was relative. Indeed, Bowers describes how *Helicon* became a crack sailer once her very sharp hold had been properly restowed. His own reservation about the 10-gun brigs was their lack of 'warlike capabilities', and he especially objected to their classification: 'Rated as sloops of war, we but risk our national reputation, and undermine the prestige of our power at sea, by risking a collision with the larger vessels of a like rate of other nations.' With the sobering lessons of the American war in mind, he concluded, 'Assuredly such a craft would be but a morsel for any of brother Jonathan's brig sloops.'³⁰



A DRAUGHT FOR BUILDING BY MR MUDDLE AT GILLINGHAM BY CONTRACT A BRIG [*OPOSSUM*] OF THE FOLLOWING DIMENSIONS. NAVY OFFICE, 11TH FEBY 1808.

Even the *Cruizer* class could not be built (or manned) in the numbers required, and succeeding designs for brig sloops became smaller. In 1807 the Admiralty issued a requirement for a new class emphasising 'fast sailing', and the new Surveyor Henry Peake, produced what became known as the *Cherokee* class. These were also built in large numbers, but more than half of them post-war. They soon established a reputation as 'coffin brigs' from the high rate of loss, but they were often commanded by young and inexperienced officers and called upon to perform arduous and risky duties. (J4798)



ONE of the first victories scored by a brig in the long wars against France, the 16-gun *Scourge* captures the republican privateer *Sans Culotte* on 13 March 1793. The French ship was larger and more heavily armed but no match for a regular naval sloop. (BHC0462)

TABLE 26 Typical Ship Sloops

<i>Ship</i>	<i>Navy built for</i>	<i>Date launch</i>	<i>Length ft-ins</i>	<i>Breadth ft-ins</i>	<i>Burthen tons</i>	<i>Armament</i>
QUARTERDECKED						
<i>Havik</i>	Dutch	1784	101-10	28-8	364	16 x 6
<i>Merlin</i>	British	1796	106-0	28-0	365	16 x 6; 4 x 12 carr; 2 x 12 carr
FLUSH-DECKED						
<i>Dart</i>	British	1796	128-8	30-0	386	24 x 32; 2 x 32; 2 x 32*
<i>Dasber</i>	British	1797	107-0	29-6	401	16 x 24 carr
<i>Bonne Citoyenne</i>	French	1794	120-1	30-11	511	18 x 6 + 2 x 32 carr
<i>Fylla</i>	Danish	1802	115-11	30-3	460	2 x 6 + 18 x 32 carr
<i>Florida</i>	USA	1813	119-5	32-0	539	2 x 12 + 18 x 32 carr
<i>Medina</i>	British	1813	115-6	29-8	454	2 x 6 + 20 x 32 carr

NOTE: Armament is given number of guns x calibre in pounds in the order – gundeck; quarterdeck; forecstle; + indicates a mixed armament of long guns, quoted first, and carronades.
 * This highly unconventional vessel was essentially flush-decked but had a topgallant forecstle and poop on which guns were added; all guns were experimental Sadler 24cwt short guns at first, later replaced with 32pdr carronades.

TABLE 27 Typical Brig Sloops

<i>Ship</i>	<i>Navy built for</i>	<i>Date launch</i>	<i>Length ft-ins</i>	<i>Breadth ft-ins</i>	<i>Burthen tons</i>	<i>Armament</i>
<i>Braak</i>	Dutch	1781*	84-0	28-11	255	2 x 6 + 16 x 24 carr
<i>Rambler</i>	British	1796	75-0	25-4	191	14 x 6
<i>Cruizer</i>	British	1797	100-0	30-6	382	2 x 6 + 16 x 32 carr
<i>Epervier</i>	French	1801	89-10	28-6	315	2 x 6 + 16 x 32 carr
<i>Port Mabon</i>	Spanish	1798	91-5	25-2	276	18 x 6
<i>Nid Elven</i>	Danish	1792	94-4	27-8	311	2 x 6 + 16 x 24 carr
<i>Cherokee</i>	British	1807	90-0	24-6	235	2 x 6 + 8 x 18 carr

NOTE: Armament is given number of guns x calibre in pounds; + indicates a mixed armament of long guns, quoted first, and carronades.
 * Rigged as a cutter when captured in 1795 but rigged as a brig in RN.

TABLE 23 Numbers of Quarterdecked Ship Sloops

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1794	32	1
1797	43	2
1799	38	0
1801	34	0
1804	19	2
1808	49	3
1810	54	2
1812	50	1
1814	43	1

TABLE 24 Numbers of Flush-decked Ship Sloops

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1794	0	0
1797	10	0
1799	23	0
1801	22	3
1804	37	0
1808	27	7

1810	19	2
1812	12	1
1814	9	1

TABLE 25 Numbers of Brig Sloops

<i>Year</i>	<i>No in Sea Service</i>	<i>No in Ordinary or Repairing</i>
1794	18	2
1797	33	3
1799	37	0
1801	45	0
1804	33	0
1808	103	2
1810	169	0
1812	144	1
1814	155	3

GUNBOATS AND GUNBRIGS



As a dominant blue-water force, the Royal Navy did not traditionally expend much effort on such an inherently defensive type as the gunboat, but there were times and situations in which they were the only answer. The defence of Gibraltar was one, since the Spanish made use of oared vessels which in the frequent calms of the region could be deadly to both merchantmen and small warships trying to enter or leave the bay. Early gunboats were very boat-like, and may well have been derived from the flat-bottomed landing boats so widely employed in eighteenth-century amphibious operations – the addition of a gun to these craft to support the landings would be natural, and in very sheltered waters their value would have become speedily apparent.

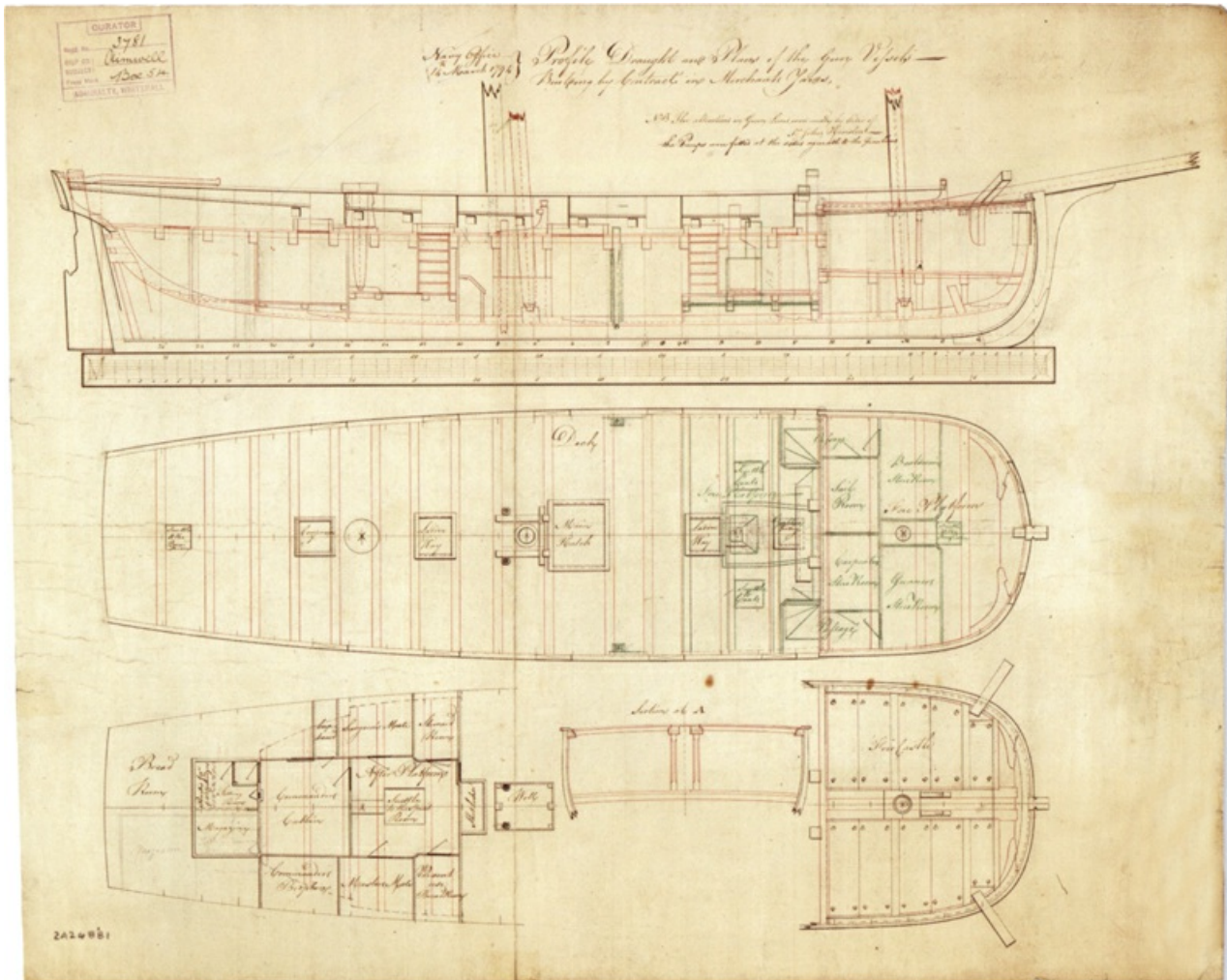
Boats of this type, with a single gun, usually forward and on a slide, were built during the American Revolutionary War, and some were deployed to defend British estuaries, creeks and minor harbours. They averaged about 40 tons, but from 1794 a new type of far larger gunboat, of around 150 tons, began to be constructed. The hull form was very flat and square-sectioned, shoal draught, and probably inspired by the small coastal traders of the time, with which the Surveyors would have been familiar, both as naval hired vessels and in slightly smaller forms as Dockyard service craft. They carried two long 24pdrs firing forward and twelve 18pdr carronades as broadside and stern-chase armament, and the design stressed the requirement to be rowed by eighteen oars, which meant a very shallow draught and poor sailing qualities. They were certainly designed for inshore operations, but judging by the way they were employed – in taking the fight to the enemy's waters – they should not be considered strategically defensive.

Initially rated as 'gunboats', then 'gun vessels', they were soon reregged as brigs³¹ and a radical attempt was made to improve their sailing qualities by fitting Schank's novel 'sliding keels', an early form of the dagger-board familiar in modern sailing dinghies. Thereafter the new rating 'gunbrig' was coined, and each was placed under the command of a lieutenant. St Vincent believed they destroyed promising lieutenants by driving them to drink, the stress of commanding such unseaworthy vessels with minimal support from junior officers being too much for many of the younger and less experienced. However, when first introduced, gunbrigs largely operated inshore and rarely saw duty outside estuaries and the occasional coastal convoy. It was only as the war expanded that a more aggressive employment forced them to take on roles for which they were not really suited.

The design progress from the original *Conquest* class, through the *Acute/Courser* classes of 1797 to the *Bloodhound/Archer* classes of 1800–1801 is clear and consistent: the designs get marginally larger, the hull forms become deeper, sharper and optimised for performance under sail rather than oars, and the bow armament is less dominant in the overall conception. This process culminates in the 180-ton *Confounders* of 1804, which in effect are small brig sloops – in fact, as the gunbrigs grew so there was an exactly opposite movement to reduce the smaller brig sloops, from around 300 tons to the 235 tons of the 1807 *Cherokee* class. Both developments were driven by the need for the maximum numbers of cruisers, and in the case of gunbrigs what were originally decidedly inshore craft become increasingly committed to offensive duties (the same needs that drove the Second World War 'Flower' class coastal corvettes into the battle of the Atlantic).

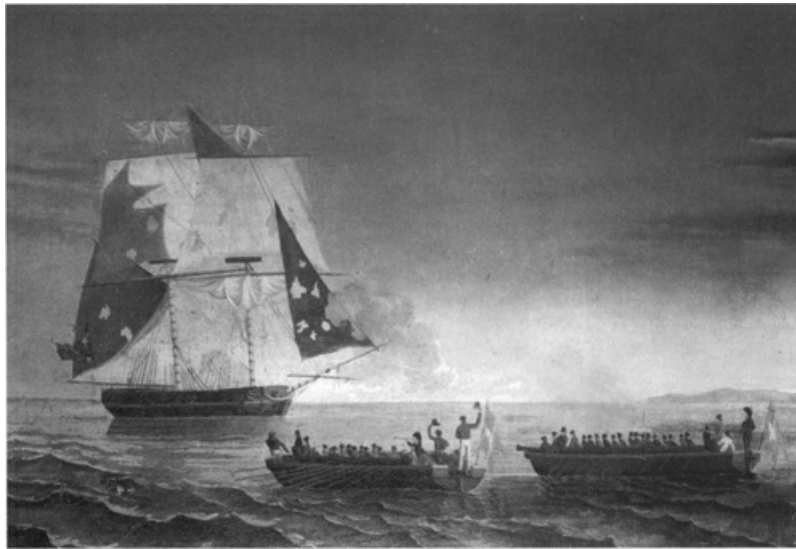


ANY European navies, especially in the Mediterranean and Baltic, employed genuine gun *boats*, which may have been sailed to their stations but were fought under oars. The British had only a few of these until 1805, when a new design by Commissioner Hamilton of the Transport Board was adopted, and eventually built in large numbers. The first six were sent out to Gibraltar to counter the activities of Spanish gunboats in the Bay, but the large programme of fifty boats in 1808 was a response to army co-operation commitments in the Peninsula and planned amphibious operations like Walcheren the following year. The hull was quite sharp and was sailed under a lateen rig, but the mast was fitted in a tabernacle (as depicted on the model) and was struck before going into action. Draughts show that the early version of the design was clinker-built with two short (36cwt) 24pdrs forward, but the 'production run' carried only one on a traversing slide, plus the revolving carronade mounting aft, as demonstrated by the model, which is also carvel-built. One draught shows a calculation of weights, the armament and fittings adding 6 tons 2cwt for a loaded draught of 3ft 3 in forward and 3ft 6in aft. The only accommodation was a tiny dog-house amidships for the commanding officer (and even this was reduced by angling the roof line downwards) – gunboat service was obviously 'hard lying'. (D4053-1)



PROFILE DRAUGHT AND PLANS FOR THE GUN VESSELS BUILDING BY CONTRACT IN THE MERCHANTS YARDS. NAVY OFFICE, 14TH MARCH 1794.

The first class of sailing gunboats, the *Conquest* design was an innovation without real precedent in the Royal Navy. Although there is no body plan shown here, the hull form was very flat-bottomed and seems to have been derived from shallow-draught coasting hoys and the like, vessels which would have been familiar to the Surveyors as dockyard supply craft. Apart from carronades on the broadside, for offence they were equipped with two ahead-firing 24pdrs under the forecastle, and the lines forward were very full in consequence. For operations inshore they were equipped to be rowed with 18 oars, but all of this class were very aggressively employed in Sidney Smith's squadron off the Normandy coast, and were modified to make them more seaworthy and habitable. This involved removing the bow-chasers and using the space for more storage, and adding a galley stove (as marked in green on this draught); and they were later fitted with sliding keels fore and aft to make them less leewardly. (J4676)



JUDGING by their employment, by the renewal of war in 1803 gunbrigs had thrown off their origins as coast defence gunboats and become sea-going cruisers, despite their small size and feeble armament. They were much used in the Baltic theatre after 1807 and suffered significant casualties, this anonymous oil painting depicting one of the most hard-fought actions – a four-hour battle in a flat calm on 4 June 1808 between the gunbrig *Tickler* and four Danish gunboats which resulted in the gunbrig surrendering. Armed only with short-range carronades, gunbrigs were not well equipped to deal with rowing gunboats with long guns that could take station wherever return fire was least likely. *Tickler* tried both sweeps and anchoring with a spring on the cable to get her broadside to bear but never achieved it; a number of gunbrigs were lost in very similar circumstances. (BHC0584)

The employment of gunbrigs can be seen as a two-stage expansion: from the beginning of the French Revolutionary War they were deployed in home waters and off the French and Dutch coasts as part of the anti-invasion operations; but in the Napoleonic War they were sent to almost all parts of the world. A crude measure of this expansion can be found in the losses suffered by the various classes – only two before 1801, but thereafter the quantity went up rapidly, and the large number wrecked or driven on to the French Channel coast underscored the fact that they were in the front line of anti-invasion patrols. Because the invasion flotilla comprised very shallow draught vessels that rarely strayed from their harbours, the gunbrigs sent to take, burn or destroy them were obliged to run serious risks. Ordered close inshore in areas demanding the greatest experience of treacherous tidal and weather conditions, it is neither surprising that so many gunbrigs were lost, nor that so many of their youthful commanders were driven to drink.³²

As the invasion threat receded and British domination of the waters around Europe increased, enemy trade was largely driven from the high seas. Only coastal shipping, creeping from port to port under the protection of shore batteries wherever possible, had any chance of survival. Similarly, the blockade so bottled up the Napoleonic main fleets, that only minor warships could reasonably expect to get to sea. So to complete the Royal Navy's stranglehold on Continental seafaring, the gunbrigs were sent inshore to disrupt coastal convoys and prevent the escape of small commerce raiders. At first it was mostly confined to the Atlantic and North Sea coasts, but after 1807 the economic blockade vastly widened the European areas of gunbrig activity, and such was their value inshore that many were transferred to other parts of the world as well.

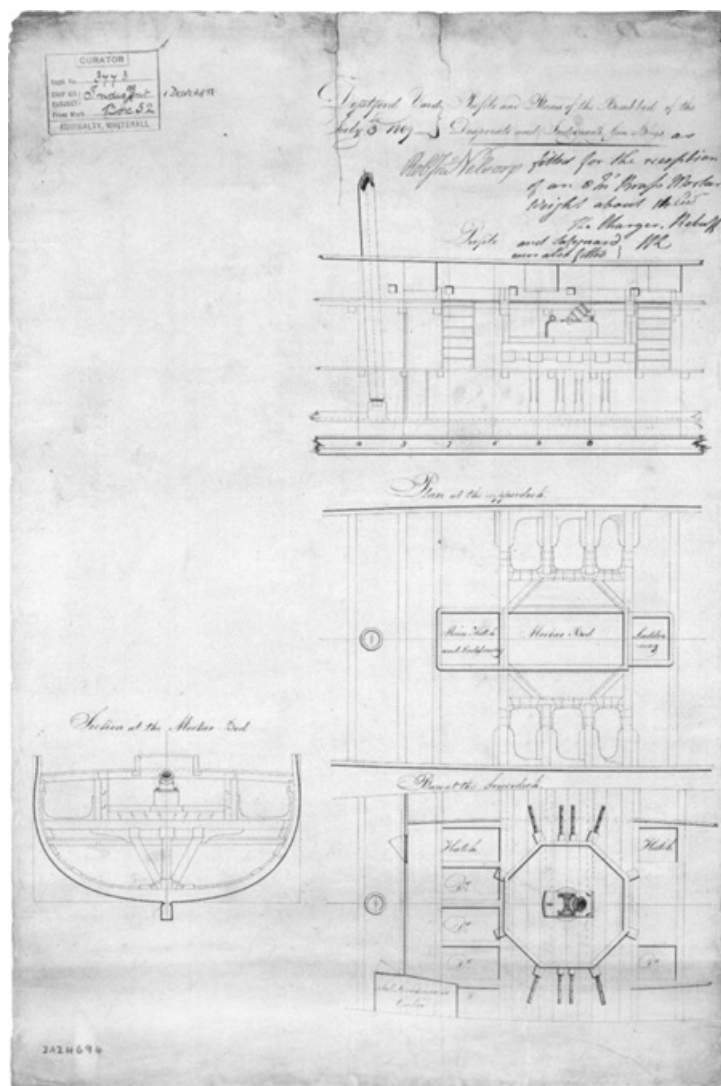
TABLE 28 Typical Gunboats and Gunbrigs

Ship	Navy built for	Date launch	Length ft–ins	Breadth ft–ins	Burthen tons	Armament
<i>Spanker</i>	British	1794	91–5	25–2	276	Battery: 10 x 24; 4 x 42 carr + 2 mortars*
<i>Conquest</i>	British	1794	75–0	21–0	146	Gunboat: 2 x 24 (bow) + 10 x 18 carr
<i>L'Eclair</i>	French	1795	59–3	20–4	101	Gun lugger: 3 x 18
<i>Crache Feu</i>	French	1795	79–7	19–10	144	Gunboat: 3 x 18
<i>Flibustier</i>	French	1796	60–9	15–2	?	Gunboat: 1 x 12 (bow), 1 x 6 field piece aft
<i>Confounder</i>	British	1805	84–0	22–0	179	Gunbrig: 14 x 18 carr
<i>Project</i>	British	1806	70–0	17–6	98	Mortar boat: 2 x 10in howitzers
Hamilton type	British	1808	54–0	14–8	51	Gunboat: 2 x 24 short (bow) + 1 x 24 carr
Gunboat	Spanish	1797†	53–3	16–0	?	Gunboat: 1 x 8½in howitzer
<i>Midefart</i>	Danish	1807†	67–7	15–0	?	Gunboat: 2 guns

Note: Armament is given number of guns x calibre in pounds; + indicates a mixed armament of long guns, quoted first, and carronades.

* Experimental floating battery with 8 x 24 firing forward in two tiers, 2 x 24 aft and carr on broadside; unsuccessful and rapidly reduced to a hospital ship.

† Date captured.



PROFILES AND PLANS OF THE BOMB-BED OF THE *DESPERATE* AND *INDIGNANT* GUN BRIGS. DEPTFORD YARD, JULY 3RD 1809.

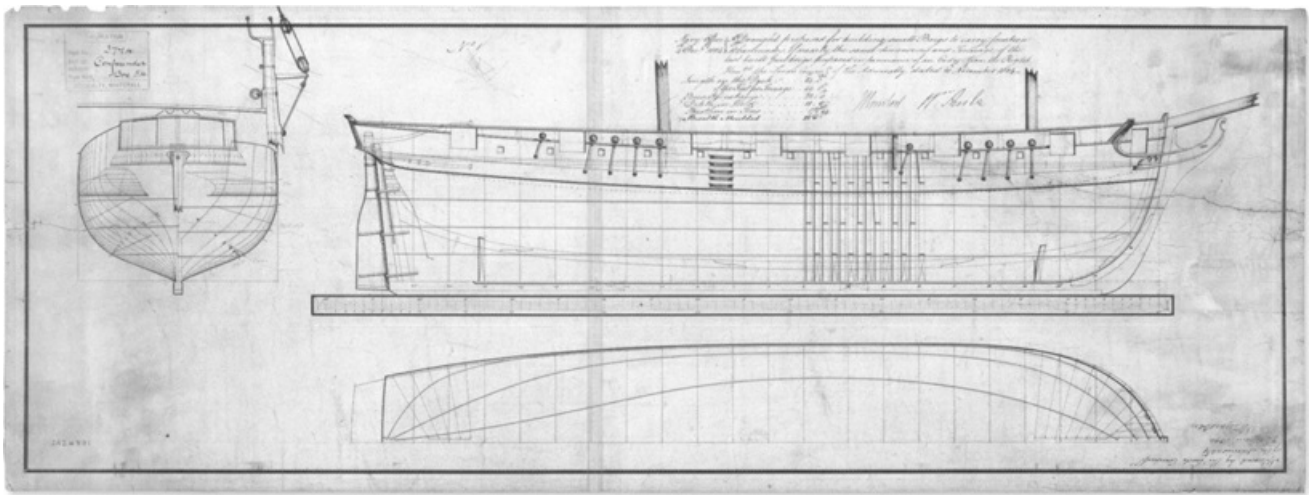
Details of how selected gunbrigs were fitted for an 8-inch brass mortar of about 14cwt. The annotation also mentions the *Charger*, *Rebuff* and *Safeguard* as similarly fitted. They were probably converted for a close-support role during the expedition to the Scheldt later that month. (J4837)

When in 1801 it was decided that Parker's fleet for the attack on Copenhagen needed gunbrigs to counter Danish gunboats, their 24pdrs and attendant equipments had to be carried across the North Sea in ships of the line; seven years later gunbrigs were operating independently off Denmark, Norway and in the Baltic – not to mention crossing the Atlantic, and reaching the East Indies. Whatever their origin, by this date gunbrigs were thought capable of going anywhere, although this is more of a tribute to the seamanship and *esprit de corps* of the Royal Navy than to any quality in their design. Gunbrigs were never true blue-water cruisers and always tended to operate inshore, although they were clearly capable of making safe passages to their designated stations.

As so often happens in warship development, when one type outgrows its original function, so another comes along to replace it. The evolution of the gunbrig into a cruiser – albeit one more suited to coastal waters – left a gap to be filled by a genuine gunboat, and large numbers of the traditional launch-like oared craft were built. Best known of the specific designs is 'Commissioner Hamilton's gunboat', designed by Captain Thomas Hamilton, a Commissioner of the Transport Board, and a man with many ideas on naval architecture.³³ They were clinker-built, with a sharp section that suggests they probably sailed well; the single mast was fitted in a tabernacle, so could be lowered aft when the craft was rowed. The first six were shipped to Gibraltar in 1805 and proved so successful that, with some modifications, eighty-six slightly larger versions were ordered in 1808. Armament varied: early examples seem to have had either two 18pdrs or Gover-pattern short 24pdrs forward and an 18pdr carronade aft on a turntable, but there is both a model and a draught dated 1809 showing one long gun forward on a slide that seems to have allowed limited traverse. They were widely used on the coasts of Spain, in support of the Peninsular campaigns, but some saw action in the North Sea as well. These gunboats were commanded by Lieutenants (or occasionally Midshipmen or Master's Mates), and judging by the recorded losses were employed, like gunbrigs, in some unlikely locations – two were lost in the estuary of the Elbe on the other side of the North Sea, although most of the remaining losses were around Gibraltar. Service in them was harsh and unpleasant, since they had no accommodation, and having seen three of them lost to accidents and stress of weather during the Walcheren campaign, Surgeon Cullen-Brown observed:

These gunboats appear to be little attended to: the service in them is particularly severe: officers and men are almost equally destitute of comfort and accommodation; their victualling is neglected, and the risk they run extreme.³⁴

He went on to point out that two men had just died from relatively minor ailments because they could not get to see a doctor in time, while others had been drowned because gunboats were not issued with small boats which could have rescued them. In all, gunboats seem to have been treated and manned with the same degree of informality as ship's boats or tenders.



A DRAUGHT PROPOSED FOR BUILDING SMALL BRIGS TO CARRY FOURTEEN 18PDR CARRONADES, OF NEARLY THE SAME DIMENSIONS AND TONNAGE OF THE LAST BUILT GUN BRIGS, PREPARED IN PURSUANCE OF AN ORDER FROM THE RIGHT HONBLE LORDS COMMRS OF THE ADMIRALTY, DATED 20TH NOVEMBER 1804. NAVY OFFICE, 4TH DECR 1804.

As the gunboats developed, they became more like seagoing vessels and less like coastal craft, reflected in their re-rating as gunbrigs and the abandoning of the big guns forward. This *Confounder* class design was quite different, with sharp lines, a deeper hull and improved below-decks accommodation. As the gunbrig was maturing, the brig sloop was simultaneously contracting, so there was not much of a gap between the 235-ton *Cherokees* and the 179-ton vessels of this class in either form or function. These small brigs were very aggressively employed, and their losses suggest that they were often required to do more than their minuscule dimensions safely permitted. A few were converted to mortar vessels with a single lightweight brass mortar amidships. (J4681)

EXPERIMENTS AND INNOVATION

IN terms of general ship design the eighteenth-century Royal Navy had a reputation – then as now – for technological conservatism, but it was remarkably open to any innovation with demonstrable practical advantage, as proved by the rapid adoption of both the carronade and copper sheathing during the American Revolutionary War. A more recent example would be Captain Schank's drop-keel, tested in the sloop *Trial* of 1788. This cutter had three separate 'sliding keels', and although the casings took up much room and were a permanent source of weakness, the system was adjudged successful enough to be applied to many of the gunboats of the 1790s.

However, there were also a number of radically different, if not eccentric, hull forms, rigs and constructional principles that were given an experimental airing, especially during the time Earl Spencer was First Lord. The best-known, and oddest, of these were the 'sloops' *Dart* and *Arrow*, designed by Samuel Bentham. After service in Russia as a military engineer Bentham secured the post of Inspector-General of Naval Works in 1796, charged with introducing the latest technology into the Dockyards. He then persuaded the Admiralty to finance the construction of these two vessels (and four similar schooners as well) incorporating some of his ideas like solid bulkheads, built-in water tanks, and Schank's drop-keels. They also carried a powerful but experimental armament, initially of 32pdr Sadler 24cwt short guns and then carronades mounted on Bentham's own non-recoil principle. With their almost double-ended form, they were too unconventional ever to be completely accepted, but both led exciting lives – the high spots were *Darts* cutting out of the frigate *Desirée* in 1800, and *Arrow's* self-sacrificial defence of her convoy in 1805.

Bentham also persuaded the Admiralty to acquire four schooner-rigged vessels of his design, in many ways reduced versions of *Dart* and *Arrow*. Initially these were also fitted with drop keels, but the casings leaked and eventually had to be removed. Rated first as advice boats and then as gun vessels, they sailed remarkably well to windward and while the keels were fitted they gave the schooners some distinct advantages: as explained by Jacob Nagle, who served in the *Netley*, the keels could be used as a form of depth gauge, the schooner chasing its prey into shallow water until they both grounded; once the enemy was taken or destroyed, the schooner raised its centreboards (reducing her draught from 16ft to 11ft) and made sail. Not surprisingly, *Netley* was often employed dropping and recovering secret agents from the coast of France.³⁵



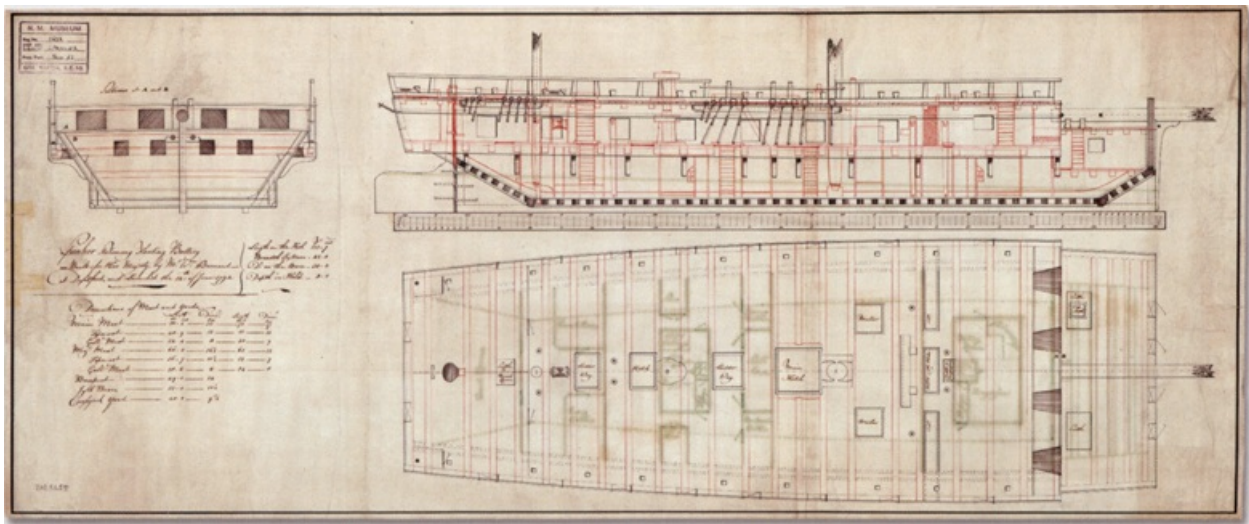
A model of the cutter *Trial*, which proved the practicality of Captain Schank's drop keels. The Admiralty was quick to see the advantage to shoal-draught vessels and they were adopted for a number of gunboats, and Bentham's eccentric designs for schooners and sloops. There was nothing wrong with the concept – it is still used in sailing dinghies today – but in practice it proved difficult to prevent the centreboard casings from leaking, and most had the keels removed or the casings caulked shut.

Bentham was able to get his projects funded because he had the ear of the Admiralty, so it must have been even easier for Captain James Gambier, a keen amateur naval architect, who was actually a member of the Board when his design for the frigate *Triton* was approved in 1796. This ship featured a flat sheer, wall sides and a heavily raked overhanging bow, and apart from improved sailing qualities, Gambier claimed that the greater use of straight timber would make the ship more economical to build. Gambier's interest in ship design was profound, and although his principles were never adopted in their most extreme form, the influence of his ideas can be discerned in other ships of that era, like the 74-gun *Plantagenet*. He never lost his interest and after the Copenhagen expedition under his command had carried off virtually the whole Danish fleet in 1807, he was instrumental in getting the prizes surveyed and their qualities analysed. This resulted in designs produced in 1809–10 for an 80-gun ship and a Middling 74, both based on the lines of the Danish *Christian VII*.³⁶ However, the resulting *Cambridge* and the *Black Prince* class did not complete until after the war.

Foreign influence in British design of this period was not uncommon, but it was usually French and confined to adopting the hull lines of selected prizes. A less conventional source of French naval architectural expertise was the 'in-house' work of the royalist emigré Jean-Louis Barrallier. A junior *constructeur* who fled Toulon when it was reoccupied by the republicans in 1794, he was given a post as Assistant Surveyor but allowed to develop his own designs, notably the 74s *Spencer* and *Milford*, and the big frigate *Lavinia*. It is possible that he was promoted beyond his competence because his ships were questionable at best, and downright poor at their worst. *Milford* was a case of the latter, being roundly criticised by her captain for lack of stability and poor sailing qualities.

Although they came from outside the design mainstream, it is perhaps stretching the term 'experimental' to apply to these major warships, but there are plenty of small craft, usually rated as 'gunboats' or 'gun vessels', that warrant the description. Largest of these was the *Combatant* class, an extremely shallow draught (11ft loaded) 'gun vessel' or sloop designed in 1804 by a Member of Parliament. They were reputedly very crank (unstable) and referred to by naval officers as *prames*, a contemptuous comparison with Bonaparte's flotilla that actually gives some clue as to their purpose.³⁷ Further down the pecking order were Sir Sydney Smith's extraordinary rowing gunboats *Musquito* and *Sandfly* that seem to have been designed expressly to defend particular anchorages in the Channel Islands. Others like the contemporary *Firm* class were little more than floating batteries (*Bravo* of this class also spent most of her active career as guardship at Jersey), while genuine batteries – mostly cut-down battleships – protected estuaries remote from naval bases, like the *Nonsuch* in the Humber. One specialist battery, the *Spanker*, was designed for the defence of harbours (and, more optimistically, for offensive operations) but her powerful two-tier forward-firing armament was nullified by the impossibility of controlling her under sail or sweeps; she was rapidly converted to a floating hospital at Sheerness. John Fincham was dismissive:

... one of those speculative and novel constructions which... have been too often carried out without due consideration of the laws of floating bodies, and without reference to the principles which should determine both the form and capacity; and it is from vague notions, without a correct knowledge of principles, that failures in the construction of ships have so often resulted...

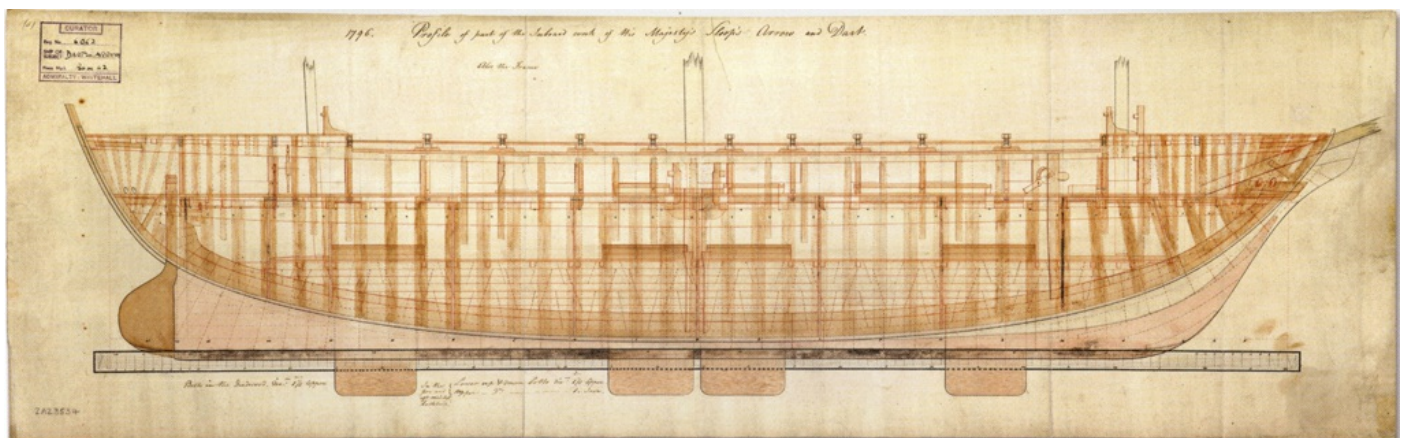


SPANKER STATIONARY FLOATING BATTERY, LAUNCHED 14 JUNE 1794. Designed by another ‘gentleman amateur’, Richard White, the vessel’s displacement was underestimated, resulting in greater draught than planned; this was important because the overhang designed to prevent the battery being boarded from boats was then underwater. Furthermore, the ketch rig was incapable of manoeuvring the awkward hull form, and she was also unmanageable under sweeps. As Fincham summed her up, ‘not one of the objects for which she had been constructed was accomplished by her.’ (J1465)

This damning indictment by a professional naval architect might be extended to most of these experimental craft. Far from being overly conservative, the Admiralty was often naively optimistic about new technology and certainly vulnerable to socially well-placed amateurs with a hobby-horse they thought the state should nurture.



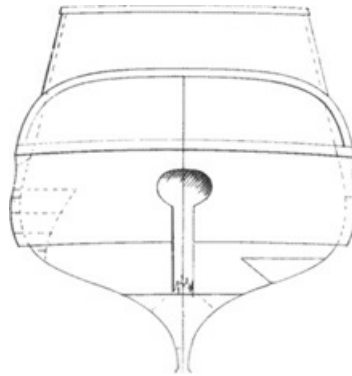
The spirit of experiment in the Spencer Admiralty stretched to allowing one member of the Board to indulge his hobby of naval architecture at the country’s expense. James Gambier designed the frigate *Triton* to test his ideas on hull form (wall sides and a raking bow) and framing, employing a disposition which minimised curved timbers. The ship also introduced a system of ventilation channels in the topside timbers that made the lower (berthing) deck more habitable. Like some other ships of the time *Triton* was built of fir, and although intended for 18pdrs was eventually fitted with 12s. Although fast, the ship was not entirely successful, and was confined to harbour duties from 1803. However, Gambier was so pleased with his brainchild that he commissioned this model and at least one oil portrait of the ship by Nicholas Pocock, the leading marine artist of his day. (F8899-001)



PROFILE OF PART OF THE INBOARD WORK OF HIS MAJESTY’S SLOOPS *ARROW* AND *DART*, 1796. Among the oddest ships ever to serve the sailing navy were these ‘sloops’, although the rating belied their strength. Samuel Bentham both designed them and oversaw their construction so the ‘unofficial’ appearance of this draught is understandable. The four Schank drop keels are obvious, but the solid bulkheads can also be picked out, although the built-in water tanks are not

visible. This is not the final configuration of the ships, which had topgallant forecastle and poop rails added, but the curious flat decks and double-ended form were as built. (J6207)

CUTTERS AND SCHOONERS



The smallest regular cruisers in the Navy had much in common, both in terms of their origins and their employment. Neither type was developed by the Navy itself, but came into service through hire, then purchase or capture, and only late in their naval careers by design. Both ranked as the smallest cruising warships, operating against minor commerce raiders and defending friendly trade, but both were to acquire fleet roles – principally carrying dispatches, as well as undertaking reconnaissance in places where the superior windward performance of their fore-and-aft rigs made them a better bet than the less handy square-riggers.

Geographically, however, their origins were very different, and this was reflected, if only initially, in very dissimilar hull forms. The deep, V-sectioned single-masted cutter was a product of the English Channel coast, mainly of Kent and Sussex, where they were employed, legally as fast coastal traders and, illegally, as smugglers, although the distinction was often very subtle. Early schooners were two-masted, less sharp in hull form, somewhat shallower, and decidedly the product of North America. In both cases the Navy adopted the local type in an attempt to counter the illegal activities of similar craft (it is well-known country lore that the best gamekeeper is a reformed poacher). The Navy's first purpose-built cutters were introduced to suppress smuggling in the years after the Seven Years War, and the first purchased schooners were acquired at the same time to try to impose the rule of English law on the reluctant colonists of North America.

A few very large naval cutters were built in the 1770s, but they proved too difficult to handle. The big cutter's main sail was a huge area of canvas and needed a substantial crew to manage it, so they were replaced by brigs where the principal driving canvas was on two masts not one. Comprising mainly square sails, which could be backed, also gave the brig rig a manoeuvring advantage over the cutter. The schooner also carried its canvas on two masts, and in the merchant service could often be safely handled by a smaller crew than a cutter.

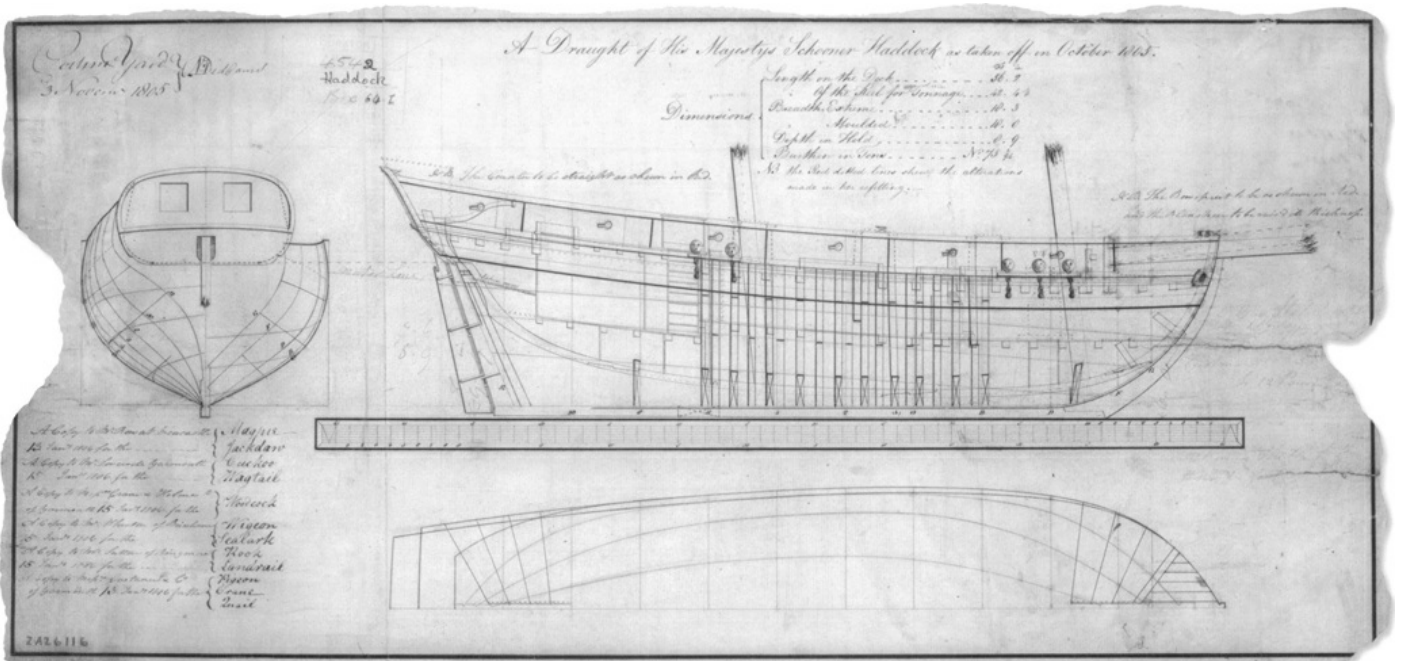
Small craft were in demand from the beginning of the war in 1793, but during the 1790s the Navy saw no requirement for purpose-built examples of either type, relying on hire, purchase and capture. However, as the Navy's areas of operations expanded so did the need for fast-sailing craft to carry orders to far-flung stations and bring home reports. Cutters and schooners were obvious candidates, but ex-merchant types were often lightly armed and not particularly fast, making them vulnerable to more powerful privateers of traditionally speedy forms like xebecs and luggers. In April 1804, for example, Nelson's dispatches were lost when the 77-ton hired cutter *Swift* was taken by a big privateer xebec; but earlier the schooner *Flying Fish* had been captured in the West Indies in 1795, and the cutter *Sprightly* in 1801, both carrying important dispatches.

The Admiralty revived the old concept of an advice boat, a craft intended to carry information (a seventeenth-century meaning of 'advice'), either in the form of dispatches or in the form of intelligence from reconnaissance. Speed was a prime requirement, and the *Express* class of 1800 were extremely long and sharp-lined. These were not entirely successful, and since the Surveyors were not very highly regarded by the incumbent Admiralty Board of the time, a new schooner design was produced by a commercial builder in Bermuda 'similar to a Bermudian dispatch boat'. These 70-ton schooners, with – their almost nominal armament of four 12pdr carronades, were much criticised at the time: William James poured scorn on these 'tom-tit cruisers' which he flatly declared were 'a disgrace to the British Navy', pointing to their remarkably high fatality rate. They certainly suffered greatly from the elements and the enemy, but James misunderstood their purpose – they were principally designed to carry dispatches (to save more important warships being diverted), and it was inevitable that some would be captured by more powerful ships in situations where the schooners' superior sailing could not be employed to advantage.

However, criticism also came from more influential quarters. St Vincent, then C-in-C of the Channel Fleet, wrote to Admiral Markham of the Admiralty Board in July 1806:

I have omitted to write to you an account of the schooners, which are no more like Bermudian vessels than they are like Indian Praams; if any more are built, Surveyor Rule must have nothing to do with them, but the [Ber]Mudian builders left to their own discretion; in fact, they are a plague and bother to all who have them under their orders.³⁸

At this date he can only have been referring to the *Ballahou* class, and although St Vincent was never very objective on the subject of the Surveyors, it maybe that Sir William Rule had some say in the design of these craft. That being said, surviving evidence suggests that they certainly did resemble Bermudian sloops, and it was not the model but the restricted dimensions which were at fault.

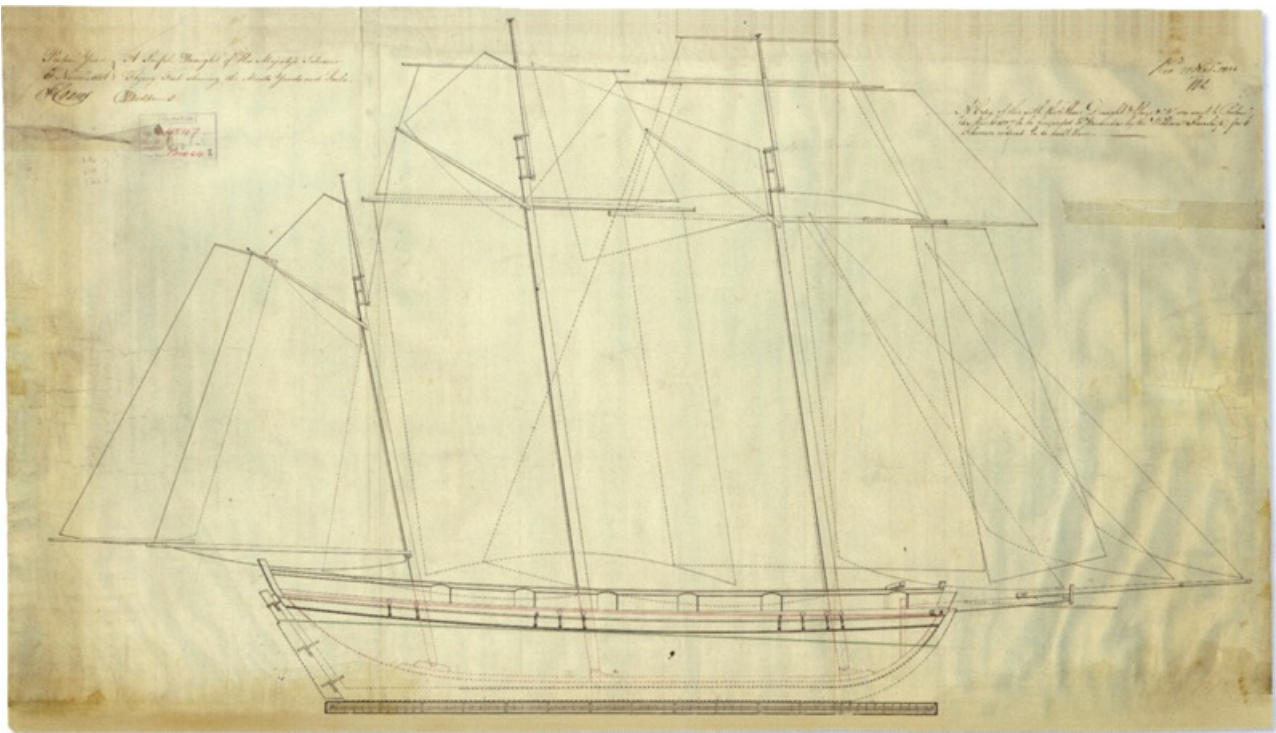


A DRAUGHT OF HIS MAJESTY'S SCHOONER *HADDOCK* AS TAKEN OFF IN OCTOBER 1805. PORTSMOUTH YARD, 3RD NOVEMR 1805.

Built in Bermuda, this 'Fish' class advice schooner was actually designed locally as well, in deference to the Admiralty's belief that the Bermudan specialists would make a better job of it than the Navy's Surveyors. This draught, with minor modifications to make the transom flatter and give the bowsprit more steeve, was used for a British-built class named after birds. (J1010)



MANY of the Navy's schooners and almost all naval cutters were purchased, captured or hired rather than purpose-built. This Robert Dodd engraving of the closing stages of Trafalgar shows the two present at the battle, the purchased Bermuda-built schooner *Pickle* and (stern on) the cutter *Entreprenante*, a privateer captured from the French. Such craft were usually employed by the battlefleets as dispatch vessels and *Pickle* brought the first news of Nelson's posthumous victory to Britain, with a duplicate report sent later by *Entreprenante*. (PA16154)



A PROFILE DRAUGHT OF HIS MAJESTY'S SCHOONER *FLYING FISH*, SHEWING THE MASTS, YARDS AND SAILS. PORTSMH, 20TH NOVEMR 1806. ANNOTATED: 'A COPY OF THIS WITH THE SHEER DRAUGHT & PLANS & C & C WAS SENT TO PORTSMOUTH 14 MARCH 1807 TO BE FORWARDED TO BERMUDA BY THE WILLIAM STORESHIP, FOR 6 SCHOONERS ORDERED TO BE BUILT THERE.'

This vessel was built in Baltimore in 1805 as the *Revenge* and was acquired by the British in 1806. She introduced the three-masted schooner to the Royal Navy the very novelty of the rig being the occasion for the draughting of this rare sail plan and as noted above, the design became the model for six vessels built of cedar at Bermuda (the *Shamrock* class). It did not take the War of 1812 to alert the British to the qualities of the Baltimore 'clipper' schooner as is often claimed, but it should be pointed out that the Royal Navy did not think very highly of their qualities as fighting ships. Their speed, especially to windward, made them ideal privateers, but they could not stand much weight of metal on deck, which had little freeboard and, with a tower of canvas, they were prone to swamping. Properly handled, they were thoroughbred racing machines, but they were very vulnerable in battle. The six vessels built to this draught were intended as advice boats not 'ships of force'. (J1288)

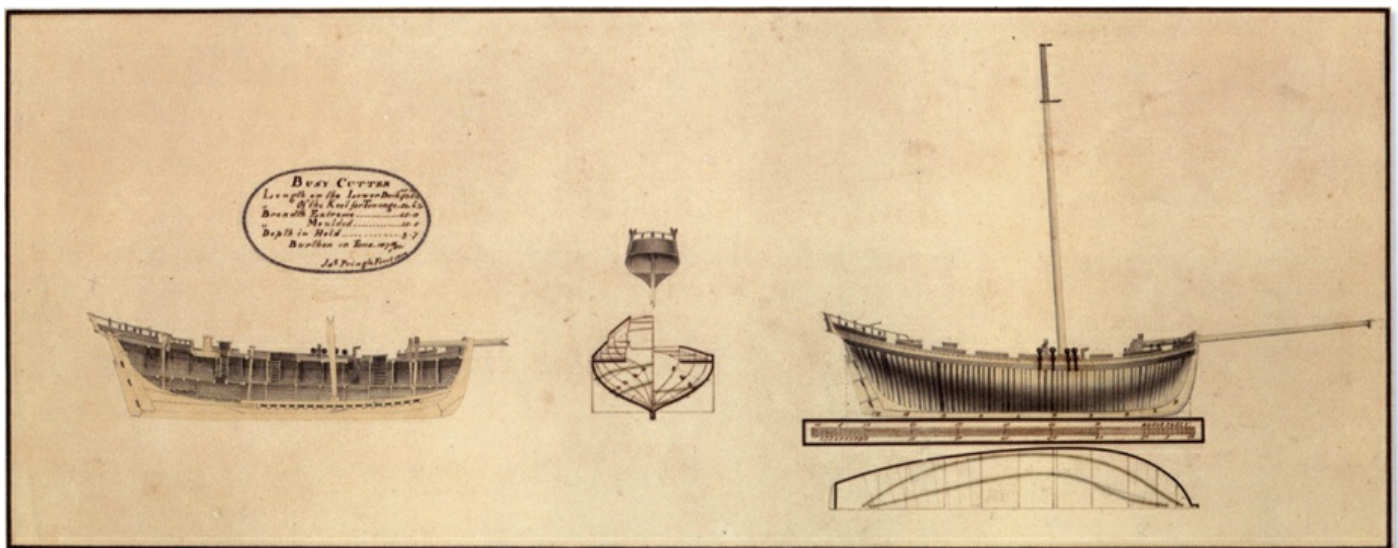


AN anonymous watercolour showing a British frigate and two cutters close inshore. The cutter to the right, shown getting underway, has no obvious gunports but the clinker-built one in the foreground is pierced for twelve guns and may well be naval. The depiction of the craft themselves and the details of their handling shows a seaman-like familiarity with the subject. (PY4080)

Another Bermudian prototype, the sloop *Lady Hammond*, had just been chosen for a new design of twice the tonnage, and some of these were rigged as cutters – court martial records show *Alban*, *Cassandra*, *Claudia* and *Laura* were cutters when lost, and *Alphea*, *Barbara* and *Zenobia* were schooners. The hull form of these Bermudian vessels, with their sharp V-section and deep drag aft were closer to traditional English cutters – hence the alternative rigs – than to the shallow American Virginia pilot boat model. However, it was one of the latter that was chosen as the prototype for the Navy’s last purpose-built schooner design of the war, the three-masted *Shamrock* class of 1808, modelled on the Baltimore-built *Flying Fish*, ex-*Revenge*. This was actually a reversal of policy since the original design for the advice schooners was the Virginia pilot boat *Swift* of 1794, which had a very flat ‘skimming dish’ hull form quite unlike the Bermudian model eventually chosen with the *Ballahous*.³⁹

The Navy built small numbers of large cutters in the remaining years of the war, but the vast majority of schooners, cutters – and for that matter, luggers and other small craft – were obtained from the enemy or the merchant service. Curiously, though, the success of large American privateer schooners in the War of 1812 had no immediate effects on the Navy’s building policy, although there was a short-lived desire to copy the *Prince de Neufchatel*.

Both main types served on virtually every station, but there was a tendency to prefer the schooner on the North American and West Indies stations and the cutter nearer home. Even the advice schooners sometimes served in offensive roles – the *Snapper*, for example, was captured while interrupting local shipping on the French coast in July 1811 – and both were often attached to blockading squadrons for inshore scouting. One particular task – coping with the swarm of small privateers – required large numbers of small craft, mostly schooners, on the West Indies stations throughout the war.



BUSY CUTTER.

One of a series of pictorial plans by James Pringle, and dated 1810, this is in fact devoted to a large cutter purchased on the stocks in 1778. Measuring 188 tons, she was armed with twelve 4pdrs and two 12pdr carronades (the formal establishment even retains twelve ½pdr swivels) and is near the maximum size that was practical for naval cutters; later vessels of similar hull form tended to become brigs. *Busy* did not quite survive into the French Revolutionary War, being sold in June 1792. (J8592)

TABLE 29 Typical Cutters, Schooners and Small Craft

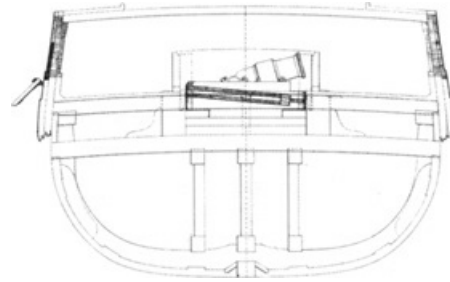
Ship	Navy built for	Date launch	Length ft–ins	Breadth ft–ins	Burthen tons	Armament
<i>Coureuse</i>	French*	c1785	55–10	15–9	55	Dispatch schooner: 2 x 24 carr
<i>Trial</i>	British	1790	65–0	21–5	122	Cutter, testbed for Schank’s drop keel: 8 x 3
<i>Haddock</i>	British	1803	55–4	18–0	71	Advice schooner: 4 x 12 carr
<i>Flying Fish</i>	USA*	1805	78–8	21–7	150	Schooner: 10 x 12 carr
<i>Cheerful</i>	British	1806	63–0	23–6	137	Cutter: 12 x 12 carr
<i>Subtle</i>	Danish*	1808†	77–0	21–1	139	Schooner: 10 x ??
<i>Defender</i>	French	1809†	65–0	17–2	139	Privateer, <i>chasse-marée</i> : 8 x 12 carr
<i>Grecian</i>	USA*	1813	95–1	23–10	224	Schooner: 2 x 6 + 8 x 18 carr
<i>Prince de Neufchatel</i>	USA*	1813	110–8	25–8	328	Schooner: 2 x 6 + 16 x 12 carr

Note: Armament is given number of guns x calibre in pounds; + indicates a mixed armament of long guns, quoted first, and carronades.

* American-built merchantmen or privateers.

† Date captured.

BOMB VESSELS AND FIRESHIPS



The bomb vessel, a French invention of the 1680s, was one of the first specialist 'weapon systems' of modern naval warfare, being purely intended for the role of bombarding stationary targets with explosive shells or incendiary carcasses. For this the usual British bomb vessel had two mortars, one 13 in and one 10in calibre, in traversing mountings on the centreline. Mortars could not recoil so the shock of firing was enormous and transferred to the fabric of the ship – Dr Cullen-Brown reported that the first round forced the lock off his cabin door and drew the nails from the bulkhead boards.⁴⁰ Therefore the ships had to be very strongly built and very stable, which made them slow and often uncomfortable sea-boats. When not required for bombardment they often cruised with the rating of 'sloop', a role compromised by their poor sailing qualities.

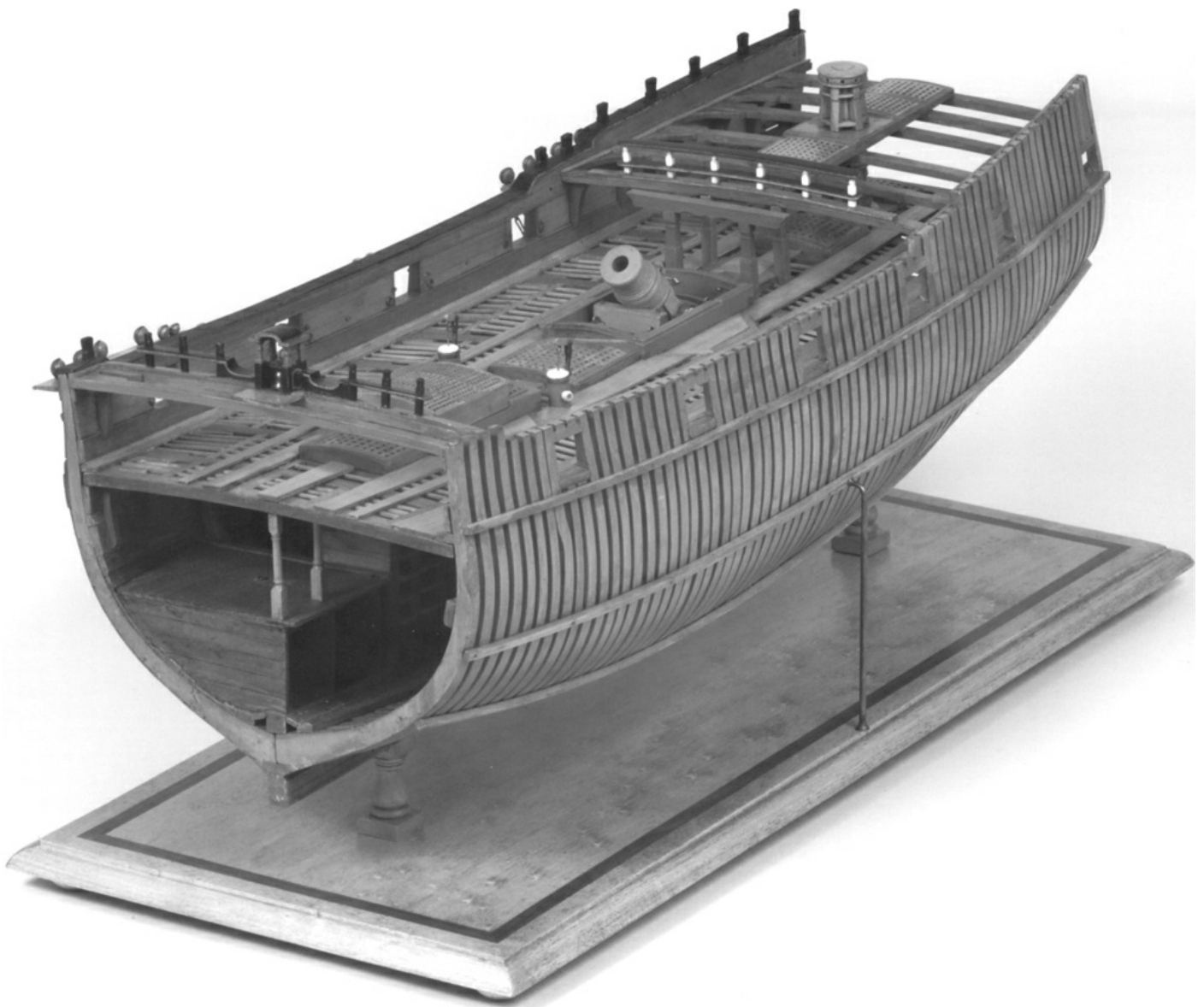
There were only two purpose-built bombs available in 1793, both of which saw some action in the West Indies early in the war, in the traditional British role for bombs of supporting amphibious attacks on enemy colonies. No need for more was felt until 1797–8 when eight merchantmen and four warships were converted to bombs. Colonel Congreve, Comptroller of the Royal Laboratory at Woolwich (responsible for gunpowder and ammunition development) had been experimenting with a new kind of 'bursting shell' (perhaps a forerunner of shrapnel) and a new method of firing it at lower trajectories than previously possible with mortars. As a result the new bombs were fitted with elaborate folding bulwarks to facilitate low-angle firing on a system devised by Congreve. Officially, it was given out that their purpose was close-support of troop landings, but considering the obsessions of the time, it is more likely that they were intended in an emergency to be used at short range against packed invasion transports, should the French ever attempt a seaborne assault. It is clear that this method was never employed in action and the complex hinged screens were eventually removed. However, even if the method of operation reverted to the traditional, the strategic aim was different. Hereafter, bombs were mainly used on anti-invasion duties, in attacks on concentrations of shipping intended for landings, and on the ports which constructed and harboured them.

In May 1798 *Tartarus* and *Hecla* supported Home Popham's Ostend expedition; a number took part in Nelson's abortive attacks on Boulogne in 1801; and in 1803 there was a series of bombardments of Channel ports carried out by *Perseus*, *Explosion*, *Sulphur* and *Terror*. All were frustratingly ineffective, partly through the inherent inaccuracy of mortars and their tendency to burst after prolonged firing, but also because the ports concerned were protected by shallow waters and sandbars that made it difficult to get close enough. Small 8in mortars were fitted in ships' launches (and later in some gunbrigs), and a few experimental shallow-draught classes like the *Convulsion* and *Destruction* were tried, but the problem was never really solved.

A related issue, which after Trafalgar replaced the concern with invasion, was how to destroy elements of the blockaded French fleet. A foretaste of the problem was afforded in 1799 when a Spanish squadron of five ships of the line trapped in Basque Roads was attacked by a British force that included the bombs *Sulphur*, *Explosion* and *Volcano*. A French mortar battery kept the British ships beyond range, and the bombs achieved nothing. On a more famous occasion in 1809 in the same venue, the British attacked a French squadron with every conceivable inshore weapon – gunbrigs, fireships, bombs, explosion vessels and rockets. Five bombs were promised but *only Aetna* (and eventually *Thunder*) arrived in time to take part. The absence of the others was partly blamed for the relative failure of the attack, but the bomb vessel's record of accuracy suggests that they would have made little difference.

Bombs could be effective against area targets on shore, however, and the biggest set-piece scenario of this kind was the attack on Copenhagen in 1801 when seven bombs went into action. Gambier's repeat performance in 1807 included only four bomb vessels, but he had the advantage of the new Congreve rockets. These last seem to have been conceived in the Navy as a substitute for incendiary carcasses rather than explosive shells, but since they imposed no reactive force on the firing ship they strongly hinted that the day of the specialist bomb vessel might be nearing a close.

Although bombs were in action relatively frequently during this war, it still left them plenty of time to act as cruisers 'between engagements'. Their disadvantages in this role were well understood, so they tended to draw *convoy* escort duties. Even here they were vulnerable, as was demonstrated by the epic, and justly celebrated defence of her convoy by the *Acheron* and Benthamite sloop *Arrow* in February 1805 in which the sloop was sunk and the bomb so badly damaged that she had to be burnt by her captors, two large French frigates. Unfortunately, the bomb's main armament, the mortars could not be used in ship-to-ship combat, although there is one recorded attempt: in June 1808 the *Thunder* and three gunbrigs, escort to a large convoy from the Baltic, were attacked by Danish gunboats when becalmed; one gunbrig was captured by the manoeuvrable oared craft, but the bomb kept them at bay by firing charges of 1-pound balls and conventional shells from her mortars.



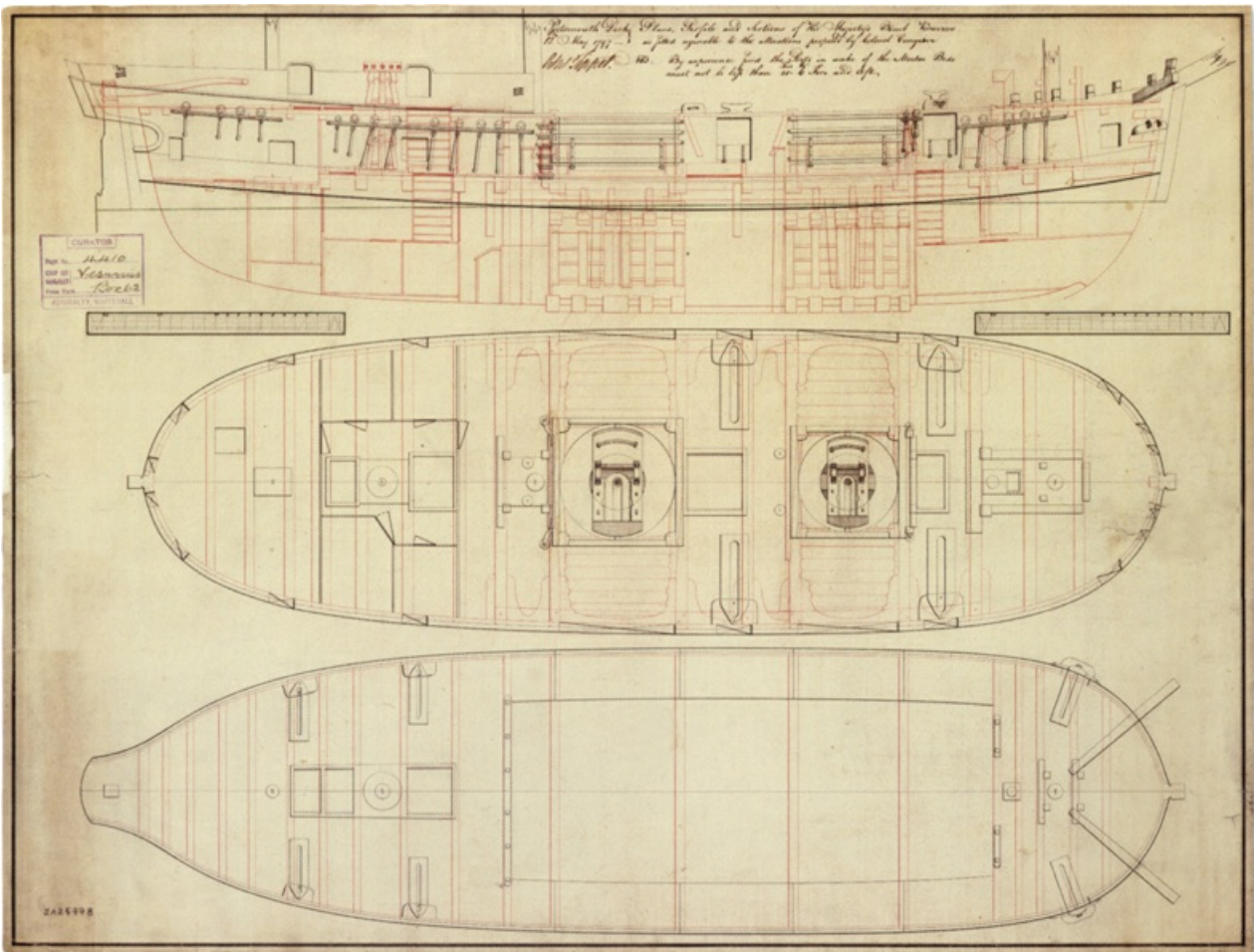
A STRUCTURAL model of the central section of the bomb vessel *Aetna* of 1776. The port side is unplanked showing the massive framing required to withstand the shock of firing the mortars. The 10in forward mortar is hidden under a hatch cover but the larger 13in version is visible further aft; the trunnions were on the breech end of the mortar which could be lowered for transit, but in action they were fixed by a chock at an angle of 45 degrees and the carriage was traversed to fire over the broadside. This basic weapon-fit of one 10in and one 13in was standardised in the 1690s and remained constant for the whole of the eighteenth century. *Aetna* herself was broken up in 1784 but two sister-ships survived to fight in the later wars, and one of them, the *Vesuvius*, was converted in 1797 to low-angle fire on Congreve's principle, as shown in the accompanying draught. (KRIEGSTEIN COLLECTION)

Seven more merchant ships were converted to bombs in 1803 and between 1807 and 1812 a handful of warships (themselves mainly ex-mercantile) were similarly taken up. The mercantile bombs were less than satisfactory, not least because their bomb rooms were above water: the crews of *Lucifer* and *Meteor* must have had a very nervous time during Duckworth's passage of the Dardanelles, when they came under heavy Turkish fire. A combination of the inadequacies of existing ships and the arduous service so many had seen suggested to the Admiralty that it was time to design a new class, which was duly undertaken in 1812.

The *Vesuvius*, and the slightly improved *Hecla* class of 1813, were more like merchant vessels in hull form than previous Navy-built bombs and were designed for greater self-sufficiency. They came into service just in time, in Sir John Borlase Warren's apposite phrase, 'to annoy the coast of America' during the War of 1812. Although used for terror rather than serious conquest, their efforts – along with the Congreve rockets often employed at the same time – obviously impinged on the American conscience, immortalised in a line of the national anthem: 'the rockets' red glare, the bombs bursting in air'.



THOMAS BUTTERSWORTH's panorama of Gambier's fleet blockading Copenhagen in 1807. In the centre is a line of three bomb vessels (*Thunder*, *Vesuvius*, *Aetna* and *Zehra* were present) but none is actually in action. The vessel blowing up to the extreme right is the armed transport *Charles*, hit by a shell from the Trekronor battery on 31 August. There were other examples of ships being hit by explosive shells, but such cases were entirely a matter of luck and mortar fire was generally regarded as far too inaccurate for use against ship targets. (PY9512)



PLANS, PROFILE AND SECTIONS OF HIS MAJESTY'S BOMB *VESUVIUS* AS FITTED AGREEABLE TO THE ALTERATIONS PROPOSED BY COLONEL CONGREVE. PORTSMOUTH DOCK, 12TH MAY 1797.

One of only two purpose-built bombs remaining in service at the outbreak of war, *Vesuvius* was refitted in 1797 along the same lines as the seven converted merchantmen purchased that year; even the knee of the head was removed leaving a plain mercantile-style stem. This profile clearly shows the huge structure of the two bomb beds with the shell rooms beneath. Above the main deck, some idea of the complexity of Congreve's embrasure fittings for low angle fire can be seen in the hinged bulwarks. To prepare for firing the top half of the bulwarks and the sections of the gangway above were removed, and the lower bulwarks hinged down; the bases and sides of the embrasures were also formed of hinged blast panels. Furthermore, the mortar bed had to be tilted to obtain a flat enough trajectory. Also on the main deck are beds for four huge 68pdr carronades – surely intended for offensive deployment, as no bomb before or after the 1797 ships needed such weapons for self-defence. (J0394)

Post-war, some bombs, most notably *Erebus* and *Terror*, found a more pacific glory in their exploits as polar expedition vessels, a role for which their strongly constructed hulls made them ideal.

FIRESHIPS

As a tactic, the release of a burning vessel to drift down with the wind or tide on the enemy is probably as old as naval warfare itself, but it

reached its apogee of success in the wars of the latter half of the seventeenth century. Very large fleets, lacking manoeuvrability and tactical sophistication, fighting in restricted waters, made for situations which the fireship could exploit. Notable successes included, on a tactical level, the burning of the English First Rate *Royal James* by the Dutch at Solebay in 1672, and of more strategic import the destruction of large parts of the French fleet by the English and Dutch off La Hougue in 1692.

Any merchant ship or superannuated warship could do the job if filled with combustibles, but fireships became more sophisticated as time went on. Ingenious developments included methods of making the fire spread quickly, like grating decks and air funnels to create draught; downward-hinged gunports that would not fall closed when the fire burned through the port tackle; cofferdams below deck to prevent the masts catching fire and coming down prematurely; grappling irons on the yardarms to make it difficult for the target to free itself; and elaborate fusing systems and a large sallyport to allow the crew to escape at the last moment. This made the quick conversion of existing vessels more difficult, and late seventeenth-century navies tended to build specialist fireships, which could cruise as sloops until they were needed. This may seem like an expensive solution, since the ship was built to be 'expended' (the official term), but it might be seen as a forerunner of a modern guided missile – also expensive, but cost-effective if it destroys a far more valuable target.

The building of dedicated fireships died out in the Royal Navy at the end of the War of Spanish Succession in 1713, but was revived during the American Revolutionary War. In 1779 a combined Franco-Spanish fleet had dominated the Channel, and for most of the rest of the war Britain was on the strategic defensive at sea. In these circumstances fireships might prove an 'equaliser', and two of the leading tactical innovators of the time, Howe and Kempenfelt, were strong advocates of their aggressive employment. However, Kempenfelt pointed out to the Comptroller, Sir Charles Middleton (later Lord Barham), that one reason for earlier lack of success with fireships was that they were slow sailers, so any new ones needed to be fast enough to keep up with a fleet.⁴¹ This was the origin of the *Tisiphone* class of the 1780s, which were modelled on the lines of a highly regarded French prize of the 1740s.

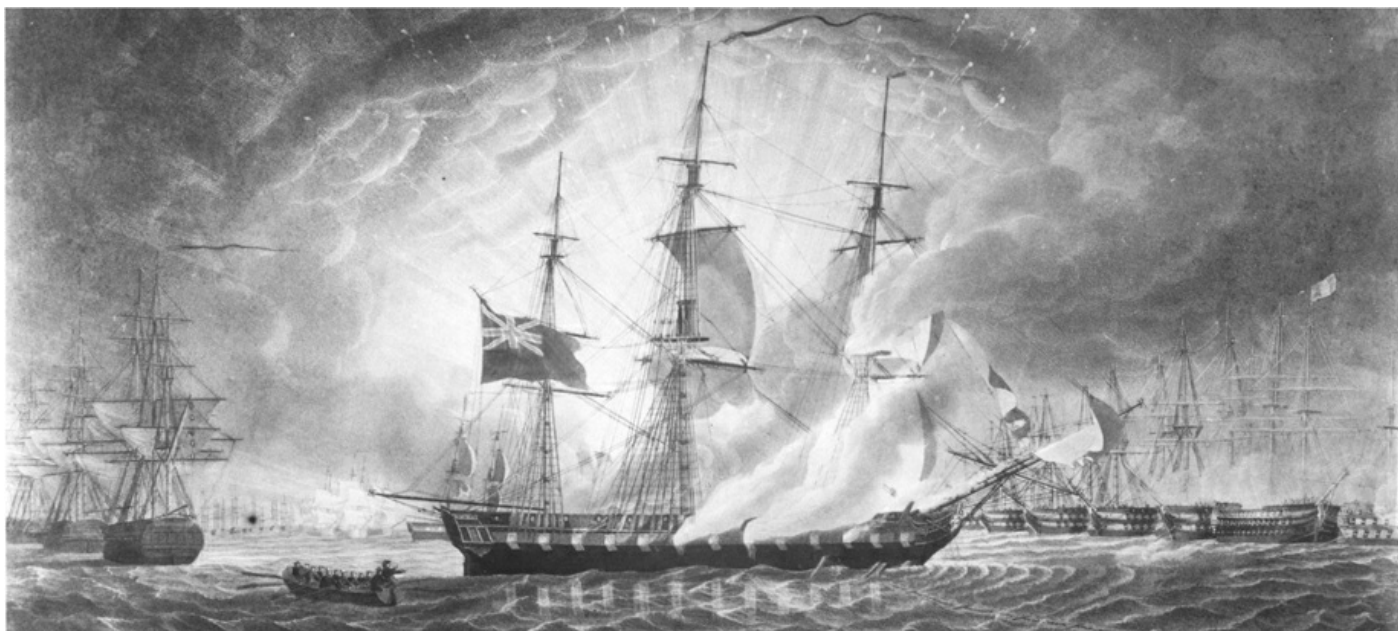
Byam Martin, who commanded the name ship in the Mediterranean in 1793, confirms that they were considered fast-sailing ships. He could perhaps count himself lucky that he was not called upon to use his fireship in earnest, since two of her class-mates in Lord Hood's fleet were so employed at the evacuation of Toulon. *Vulcan* was 'expended' in the time-honoured fashion to set fire to a line of French battleships, but *Conflagration*, under repair and immovable, had to be burnt to avoid capture. Howe, as would be expected of a fireship partisan, had a number of these ships during his command of the Channel Fleet, although their presence was disguised by their cruising rating as sloops. There were no opportunities for deploying fireships in fleet actions, although Nelson considered using them in 1803–4 if the Toulon fleet had proved superior in numbers, but they became an important part of British attempts to destroy various enemy squadrons trapped by an ever more effective blockade. The only other purpose-built fireship expended, the *Comet*, was sent into Dunkirk Roads with three converted sloops in July 1800 in an attempt to destroy four large frigates. The fireships set fire to nothing, but in the confusion the *Desirée* was cut out by the sloop *Dart*. As pointed out frequently in earlier sections, an increasing preoccupation for the Royal Navy from the late 1790s was the assembly of would-be invasion craft across the Channel. Fireships might well be useful during an attempted crossing, but conceivably might also be employed against the shipping inside its harbours and anchorages if the opportunity presented itself. With this kind of operation in mind a number of smaller, shallower draught, merchant ships were converted as 'fire vessels', but no opportunity had presented itself by the Peace of Amiens and they were all paid off.

Unfortunately the peace lasted little more than a year, and the war took up where it had left off, with an invasion threat even more serious than that of 1801. Six fireships modified from the *Tisiphone* design were laid down (although in the event all saw out the war as sloops), but as a short-term measure more of the small fire vessels were taken up.

The last – and probably most infamous – set-piece use of fireships was Gambier's attack on the French squadron embayed in Basque Roads in 1809. Lord Cochrane led the attack, which included all the latest weaponry: cutters firing rockets, numerous fire vessels, a bomb, and three explosion vessels. The action became notorious because the initial success was not followed up, and provoked a very damaging public argument between Cochrane and Gambier. Leaving aside the rhetoric, it is worth noting two points: firstly, fireships and explosion vessels were rarely dangerous in themselves, but created panic that could be exploited by conventional forces; secondly, and far more significantly for nineteenth-century developments, it showed that the Royal Navy would not scruple to employ the most horrendous weapons if it were the only method likely to destroy the enemy. Much has been made of St Vincent's famous criticism of Pitt's support for Fulton's underwater experiments:

Pitt was the greatest fool that ever existed to encourage a mode of warfare which those who commanded the seas did not want and which, if successful, would deprive them of it.⁴²

What he did not say was that those who commanded the seas would use even the most unconventional methods if they were the only means of preserving that supremacy.



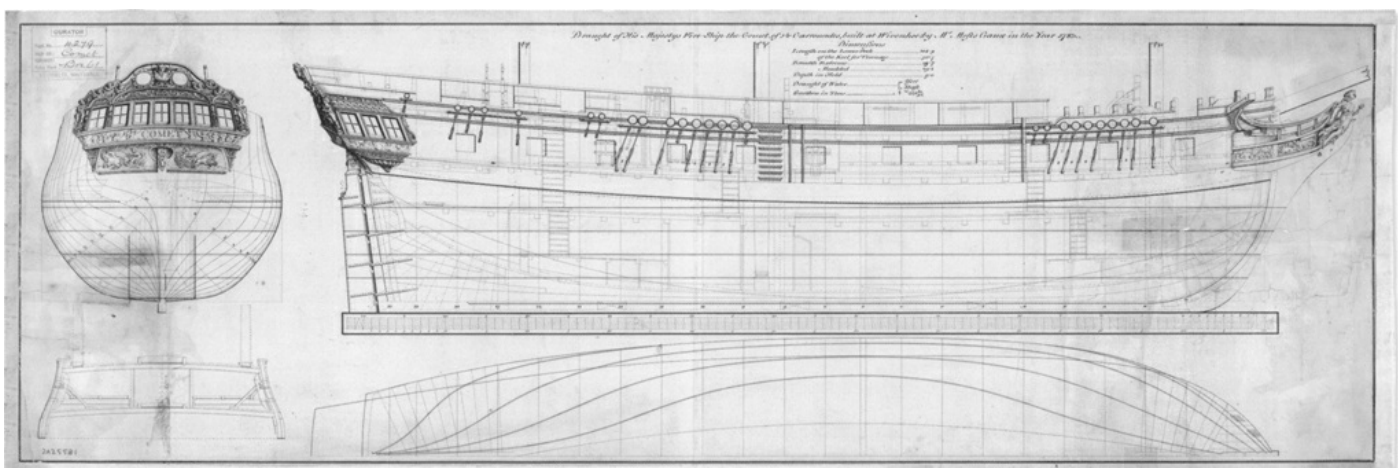
THE last hurrah for the Royal Navy's fireships: the *Mediator*, a purchased East Indiaman, was turned into a makeshift fireship and employed during Lord Cochrane's attack on the French fleet in Basque Roads in April 1809. As with so many previous attacks, the fireship did not reach its intended target, but the panic caused should have been better exploited by the British. While its use as a weapon in fleet battles was long-since abandoned, it continued to have value against stationary or disabled targets, and even after 1815 was used with effect by the Greeks in their war of independence against the Turks. (NEG 0196)

TABLE 30 Typical Bomb Vessels and Fireships

Ship	Navy built for	Date launch	Length ft-ins	Breadth ft-ins	Burthen tons	Armament
BOMB VESSELS						
<i>Vesuvius</i>	British	1776	91-6	27-8	298	1 x 13in, 1 x 10in mortars, 4 x 68 carr; 4 x 18 carr; 2 x 18 carr
<i>Meteor</i>	British	1805*	106-0	28-0	365	1 x 13in, 1 x 10in mortars; 2 x 6 + 8 x 24 carr
FIRESHIPS						
<i>Comet</i>	British	1783	108-9	29-7	421	14 x 18 carr

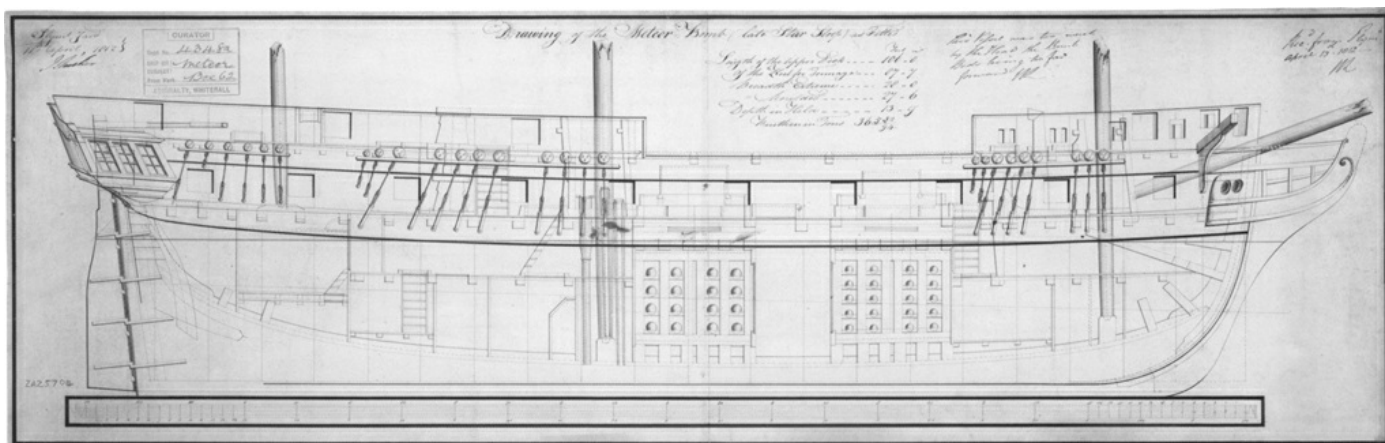
Note: Armament is given number of guns x calibre in pounds in the order – gundeck; quarterdeck; forecastle; + indicates a mixed armament of long guns, quoted first, and carronades.

* Converted from the ship sloop *Star* in 1812.



DRAUGHT OF HIS MAJESTY'S FIRE SHIP THE *COMET* OF 14 CARRONADES BUILT AT WIVENHOE BY MR MOSES GAME IN THE YEAR 1783.

This 'as fitted' draught with its elaborate decorative work hardly suggests a disposable product and, indeed, the chance of any fireship meeting a fiery end was slim. However, *Comet* was 'expended' in an attack on Dunkirk in July 1800, one of a very few examples of the classic use of fireships during the 1793–1815 wars. But there were many more occasions on which it was contemplated: two fireships were intended for Nelson's fleet during the Nile campaign (presumably to be sent among the transports if the French were met at sea), and it is not surprising that a new class of purpose designed fireships was put in hand during the pre-Trafalgar invasion scare. Although they usually served as sloops, as the sketch of the fire room (to the left) makes clear; they were permanently fitted with the main features of fireships for relatively speedy conversion to the incendiary role. (J8035)



DRAWING OF THE *METEOR BOMB* (LATE *STAR SLOOP*) AS FITTED. NAVY OFFICE, 20TH MAY 1812. PLYMOUTH YARD, 11TH APRIL 1812.

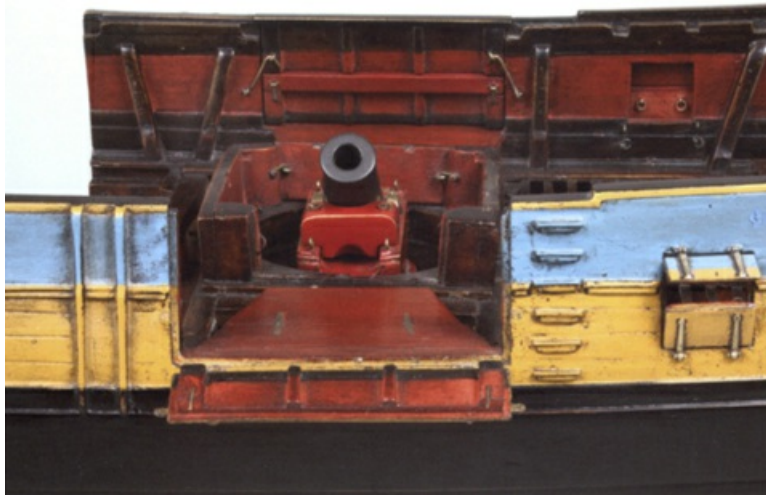
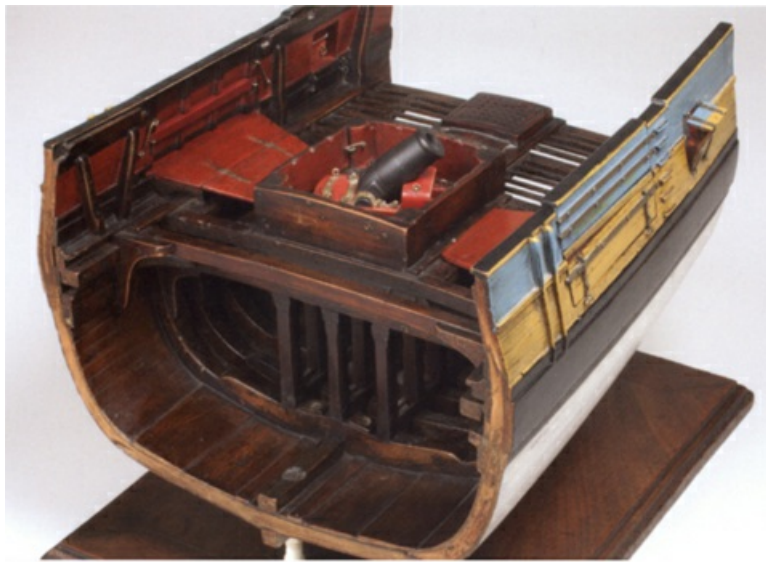
Apart from purchased merchantmen, bomb vessels were also converted from warships, like the sloop *Star*. However, they were usually too fine-lined to make ideal bombs, a note on this draught recording: 'This Vessel was too much by the Head, the Bomb Beds being too far forward.' However, at the same time as *Meteor* was being converted the first new design for a purpose-built bomb for sixty years was being draughted, and the resulting *Vesuvius* class were similar in size and proportion to *Meteor*. However, they had a squarer, more capacious section, and another advantage of building from scratch was that the heaviest scantlings could be employed for the framing, ensuring a very strong hull. Indeed, the greatest tribute to the robust character of these ships was their sterling performance in the icy Polar wastes as exploration ships in the post-war years. (J7582)

THE INVASION THREAT

From the mid-1790s until the destruction of the French fleet at Trafalgar in 1805, behind every strategic decision taken by the British government was a lurking fear of invasion. It influenced the way defensive forces were deployed in home waters, inspired the Sea Fencibles and Martello Towers, and it even infiltrated the thinking on many aspects of ship design and the kinds of vessel ordered. The clearest example is the type of flat-bottomed gunboat ordered in such numbers at this time, but it was also the driving force behind some of the most innovative developments of the period – particularly after conventional tactics and ships failed to make a substantial impression on the invasion preparations. Colonel Congreve's experimental system for low-angle mortar fire was supposedly intended for close-support of amphibious operations, but its unique combination with massive 68pdr carronades in all the purchased bomb vessels of 1797 hints at a different concern: at short range such weapons would have caused havoc among packed landing craft.

Boulogne was the central assembly point for the invasion forces and as such it was subjected to set-piece attacks either side of the Peace of Amiens (1802–3). However, it was a difficult target, not least because offshore forts kept attacking vessels beyond the effective range of their main weapon, the shipborne mortar. Much ingenuity was expended on this problem, including producing small, shallow-draught mortar boats in 1804, and the following year a bizarre double-ended mortar vessel, appropriately named *Project*. This was the brainchild of William Congreve, the Colonel's son, who was to make anti-invasion weapons something of a family business. *Project* seems to have been a somewhat saner version of his original proposal for a large armour-clad mortar vessel that would be invulnerable to counter-fire.

Congreve the younger would make his name as a rocket pioneer and his work in this direction was more successfully applied to later attacks on the invasion flotilla. In a foretaste of the twentieth century, these were combined with the deployment of 'torpedoes' – actually, floating mines with clockwork time fuses, invented by Robert Fulton – and the government had such high hopes of them that considerable resources were expended on what were unproven weapons. These attacks were almost total failures, but the British were so frustrated by not being able to get at their enemy that experiments in various forms of unconventional warfare continued for some years. Before Trafalgar rendered it unnecessary, there was even a scheme to attack the Franco-Spanish fleet in Cadiz with a very modern-sounding combination of rockets and torpedoes.

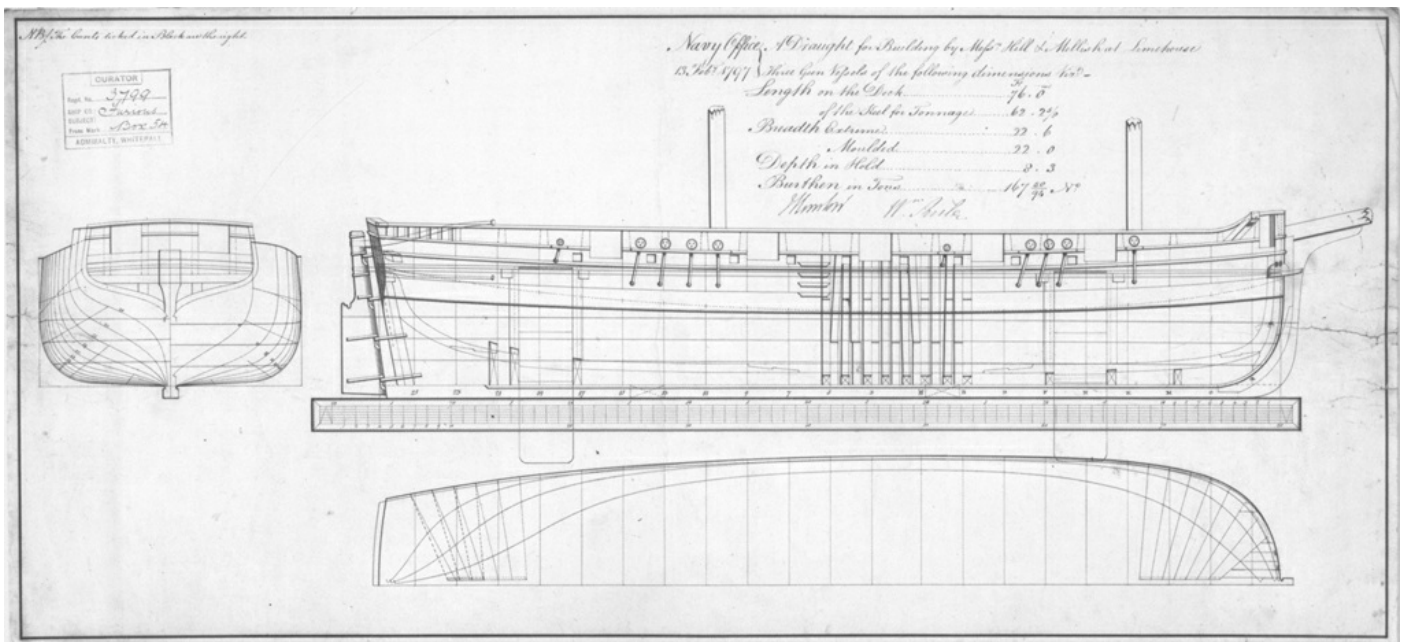


One of the most intriguing artillery developments of the late 1790s was Congreve's experiments to give bomb vessels the capability to fire their mortars at very low angles (15 degrees). These trials were rated successful enough to incorporate their complex arrangements into all the bomb vessels converted in 1797 – this fascinating contemporary sectional model shows the hinged bulwarks and some of the folding panels that were designed to give blast protection to the ship structure. It was given out that the purpose was the close support of amphibious operations, but the only employment in prospect for bombs at this time was against invasion shipping. Furthermore, the experiments included a new form of bursting round that sounds like a primitive forerunner of shrapnel. (KRIEGSTEIN COLLECTION)

In the event, their achievements were negligible, and the invasion menace was eventually dispelled by the workings of conventional seapower. Frustrated by the inability of his seagoing fleet to seize control of the Channel to allow an invasion, Napoleon broke up his encampment and marched off to attack Austria; then Nelson destroyed that fleet at Trafalgar and the threat was effectively over.

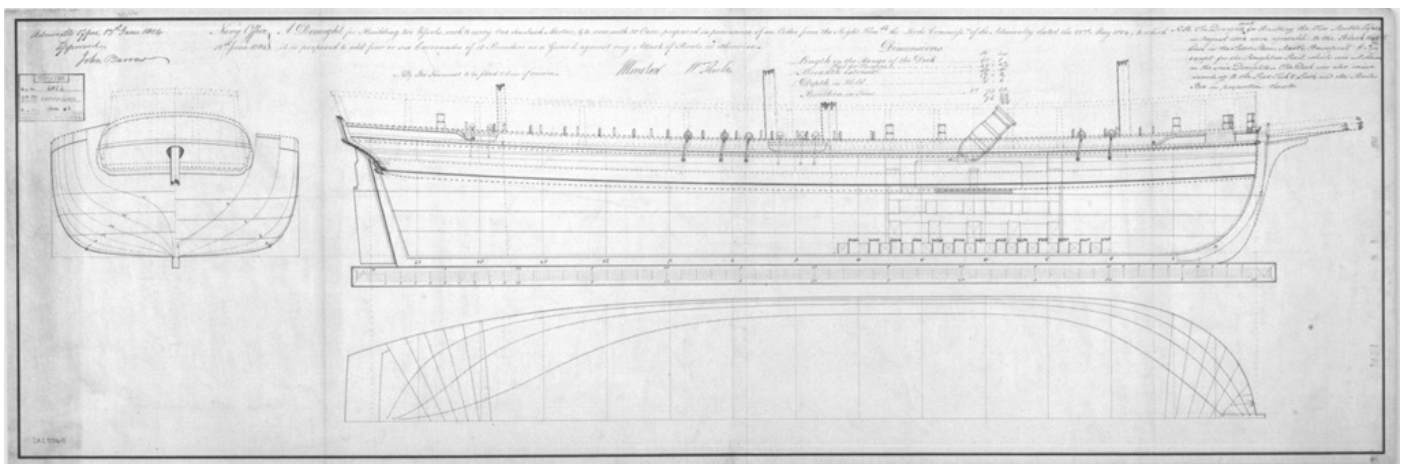


Napoleon had his invasion craft built in many ports along the coast of his empire, from where they were conveyed to the Channel harbours. The British tried to intercept these where possible, but largely failed to stop the build-up, so were driven to attack the main concentration at Boulogne. Nelson had tried a cutting-out style raid in August 1801 but his boats had been bloodily repulsed. With the renewal of war after the short-lived Peace of Amiens, the danger seemed more acute and a number of large-scale operations were set in motion. This naïve but detailed view shows the large number – and great variety – of vessels employed in the August 1804 attack. It also depicts the line of French invasion craft drawn up outside the port (and a vast array of masts inside it), as well as the defending forts and the encampments of Napoleon's army on the surrounding hills. The British squadron could not get close enough to inflict real damage and the result was an ineffectual bombardment. This drove the British government to consider less conventional means of attack, including plans to sink blockships in the entrance, and eventually to try some advanced (and untried) technology – torpedoes and rockets. (PZ6989)



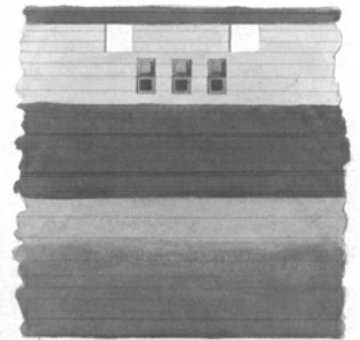
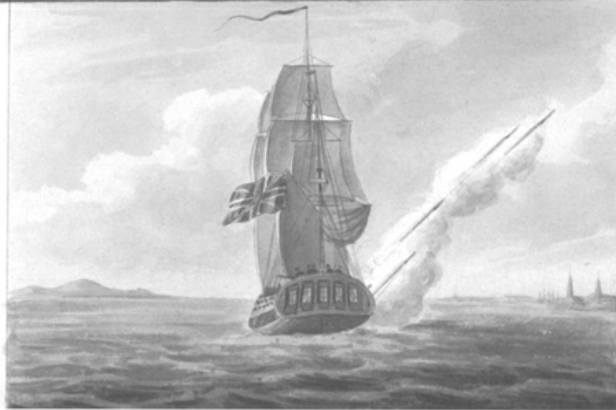
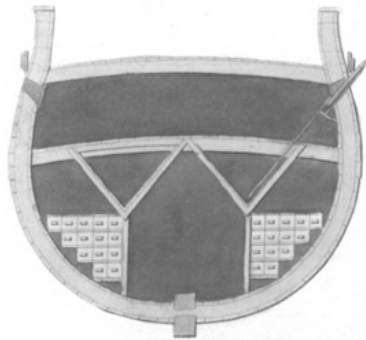
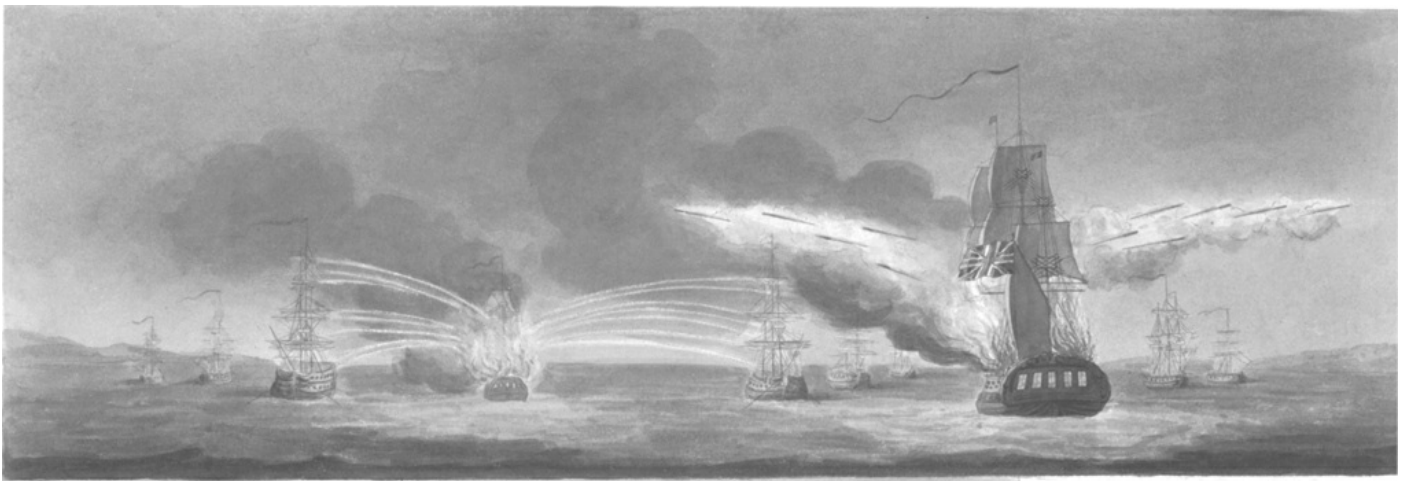
A DRAUGHT FOR BUILDING BY MESSRS HILL & MELLISH AT LIMEHOUSE THREE GUN VESSELS OF THE FOLLOWING DIMENSIONS. NAVY OFFICE 13 FEBY 1797.

These *Courser* class vessels floated in less than 6ft of water and the flat bottom made it easy for them to take the ground. However, drop keels and a brig rig made them relatively handy under sail and with two forward-firing 24pdrs (plus ten 18pdr carronades), they were ideal craft for the defence of shoal waters and swatchways. However, they were also used to take the fight to the enemy, operating against the build up of invasion shipping on the other side of the Channel. (J0089)

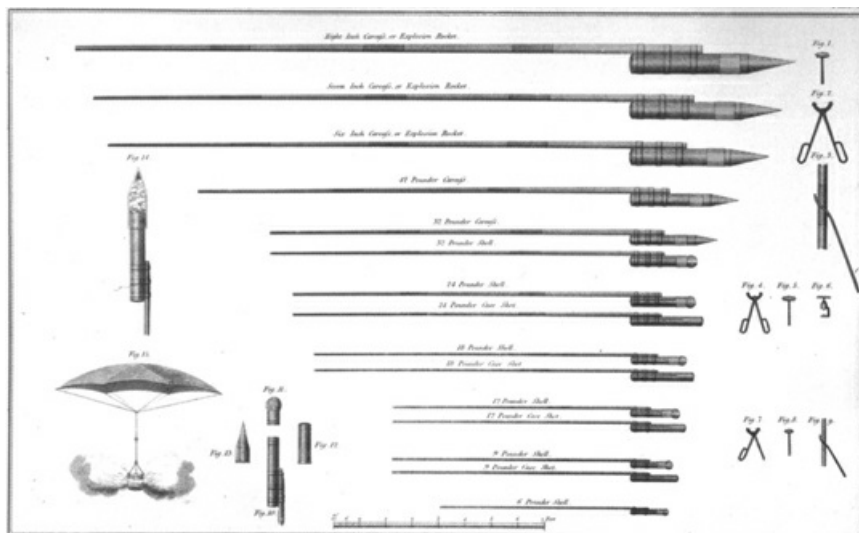


A DRAUGHT FOR BUILDING TWO VESSELS, (*CONVULSION* CLASS) EACH TO CARRY ONE TEN INCH MORTAR, & TO ROW 30 OARS, PREPARED IN PURSUANCE OF AN ORDER FROM THE RIGHT HONBLE THE LORDS COMMISSRS OF THE ADMIRALTY DATED THE 22ND MAY 1804; TO WHICH IT IS PROPOSED TO ADD FOUR OR SIX CARRONADES OF 18 POUNDS AS A GUARD AGAINST ANY ATTACK OF BOATS OR OTHERWISE. NAVY OFFICE 12TH JUNE 1804.

One of the greatest difficulties of attacking the invasion shipping was the shoal water off the Channel ports in which it was assembled, which kept conventional bomb vessels too far off to inflict much damage. These shallow-draught rowing vessels were clearly intended to get close inshore (hence the need for defence against boat attacks). Only two were built, which may suggest a loss of confidence in them, but the battle of Trafalgar the year after they were built destroyed any realistic chance of a French invasion and at the same time largely destroyed their *raison d'être*. (J6698)

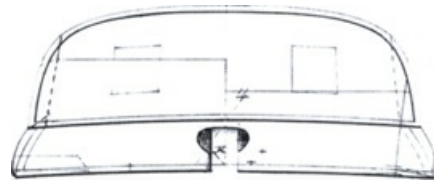


Late in 1804 a number of attacks on Boulogne employed a range of Robert Fulton's explosive devices he called 'torpedoes' (actually drifting mines) but these proved expensive failures. However, this was followed by a more promising technology in the form of war-rockets developed by William Congreve the younger. As demonstrated in this promotional pamphlet, he conceived of them as both a shipboard bombardment weapon – in effect, a replacement for the bomb vessel – and as an addition to the arsenal of the fireship (top view). They were used in a number of raids from December 1805 and gradually they were improved in range and accuracy. Eventually the sloop *Galgo* was fitted up with twenty-one rocket scuttles on each broadside (as shown in the detail views) and as such was employed during the Walcheren campaign in 1809. However, the most famous example is the conversion of the fireship *Erebus* in 1814, whose attack on Fort Mchenry seared 'the rockets' red glare' into American history. (PY7444)



The full range of Congreve rocket types available by the end of the war. (D9547)

SERVICE CRAFT



To keep the enormous British battlefleet at sea required a well-equipped dockyard organisation of huge size – it has been called the world's largest industrial concern of the time. Its own requirement for a myriad of craft is easily appreciated once it is understood that most warships spent the vast majority of their time afloat. Docking was only undertaken for major repairs and cleaning the copper sheathing, and even when in harbour ships were rarely brought alongside a quay. Therefore, all aspects of fitting out, masting, rigging and storing were carried on at a mooring. Once commissioned, a warship's own boats could be used for some functions, but the dockyard's work usually involved carrying out stores and the workforce to the ships concerned.

Perhaps the first concern for any naval base was to keep its channels and anchorages free for even the deepest-draughted ships. This involved a major continuous dredging effort, particularly in rivers like the Medway. The earliest craft were man- or horse-powered and were inherently inefficient. However, from the 1790s the industrial revolution was coming rapidly to the dockyards, inspired by the energetic Samuel Bentham in the new post of Inspector-General of Naval Works. Perhaps best known for sponsoring Marc Brunel's mechanical block-mills, he was also responsible for the introduction of steam machinery for tasks like sawing. The first Navy steam engine afloat was not used for propulsion but powered a novel bucket dredger that was built in 1802. It was so successful that others quickly followed.

Probably the most prominent sight in any tidal dockyard was the sheer hulk. Unlike the tideless Mediterranean, the large rise and fall of tides around the British Isles made a floating crane essential for getting in lower masts. This was traditionally an old hull cut down (hence 'hulk') and equipped with a set of sheer legs. It was moored out in the harbour where the ship being fitted could be warped alongside at any state of the tide. A few were actually built for the purpose, although this was unusual.

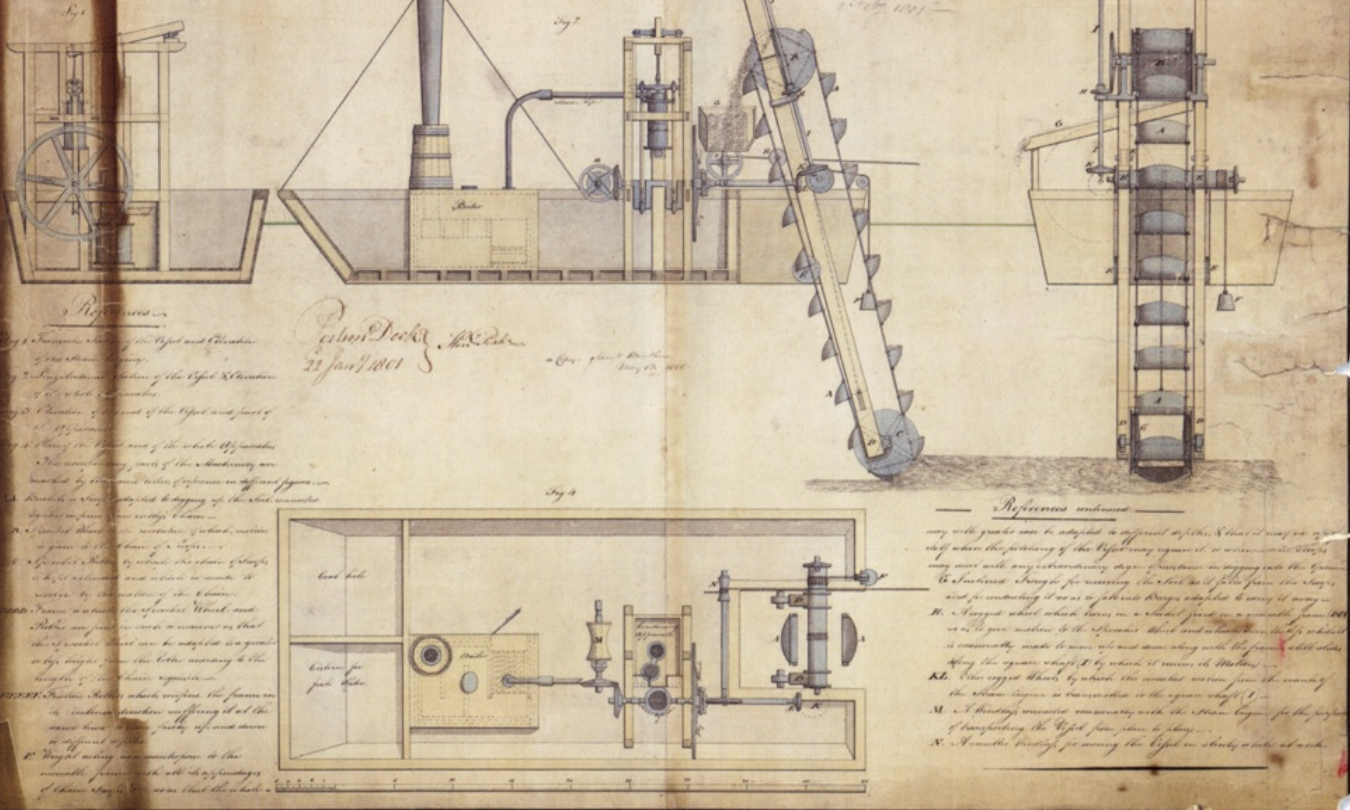
The Navy tended to hire transports as required for its blue-water operations, but it also owned a small number of purpose-built craft, like the *Aid* class, that were used to supply the dockyards. These were moderate sized vessels, essentially similar to merchantmen of similar tonnage. The vast majority of dockyard craft were generically described as lighters, capacious flat-sheered single-masted vessels that were used for a variety of tasks, including victualling. The Master Attendant, with overall responsibility for the well-being of ships afloat, took charge of rigging ships, but also looked after ships in the Ordinary (reserve) and consequently the permanent moorings to which they were secured. As a result he was allowed a number of buoy boats, chain boats and mooring lighters, usually equipped with a large davit for laying and taking up the clump moorings and anchors, their chains and buoys. Although built for stability, these craft had to be capable of operating in open water like Spithead, and were obviously quite seaworthy – indeed, in a famous incident in April 1808 escaping French prisoners of war stole one and sailed it safely across the Channel from Portsmouth.



EVERY naval port required a sheehulk – a floating crane used to install the lower masts. There are instances of these being purpose-built in the form of large rafts, but they were generally old ships cut down to one of the lowest decks on which were fixed a pair of sheer legs and a powerful system of capstan-driven tackles to hoist the mast into a ship lying alongside. Although somewhat crude, this model demonstrates all the usual features of such a craft. (F9981-002)

Plan, Elevation and Sections of an Apparatus proposed to be erected on board a floating Vessel, for the purpose of digging up by the force of a Steam Engine Shingle, Sand or Mud from any depth under Water not exceeding 20 feet at the rate of about 1000 tons in 12 hours, so as to clear away Shoals in Harbours, Rivers &c.

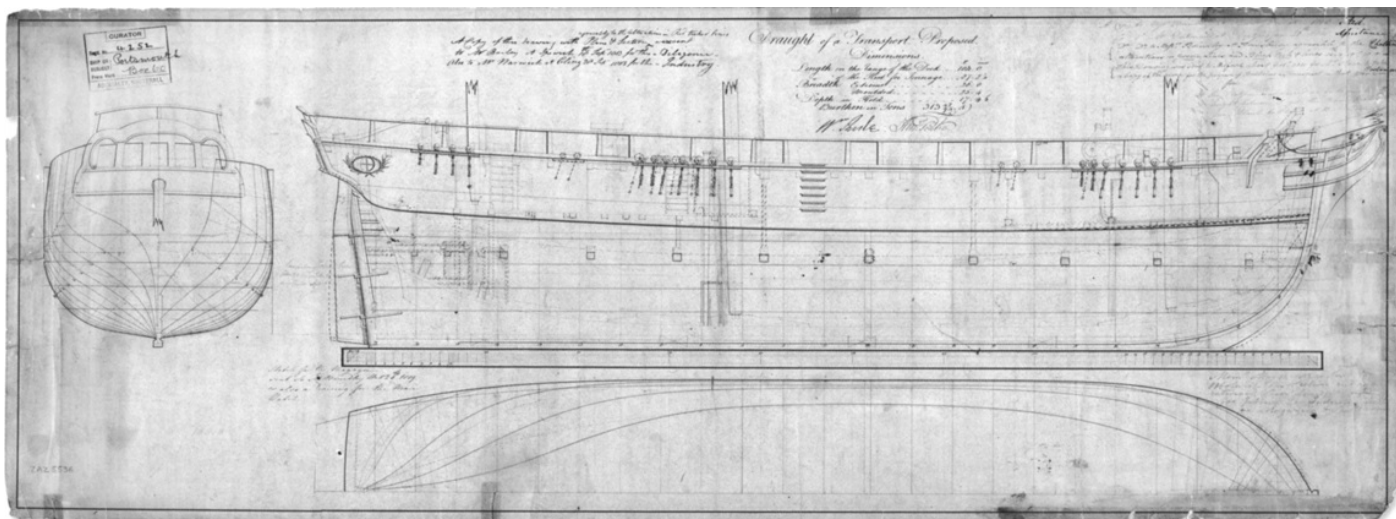
DESIGNER
 No. 6755
 Date 23 Jan 1801



PLAN, ELEVATION AND SECTIONS OF AN APPARATUS PROPOSED TO BE ERECTED ON BOARD A FLOATING VESSEL FOR THE PURPOSE OF DIGGING UP BY THE FORCE OF A STEAM ENGINE SHINGLE, SAND OR MUD FROM ANY DEPTH UNDER WATER NOT EXCEEDING 28 FEET AT THE RATE OF ABOUT 1000 TONS IN 12 HOURS, SO AS TO CLEAR AWAY SHOALS IN HARBOURS, RIVERS & C. PORTSMOUTH DOCK, 22ND JAN 1801.

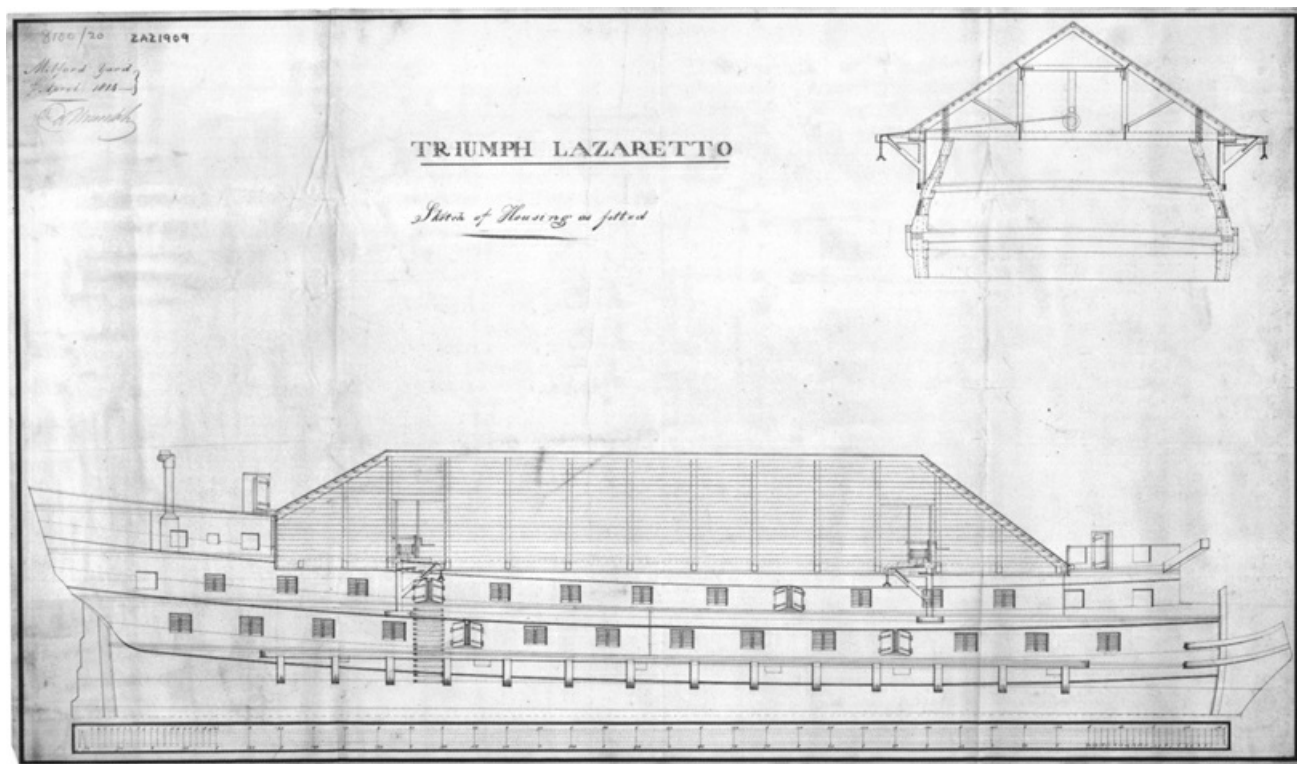
Although the Navy was involved with Lord Stanhope's experimental steamer *Kent Ambinavigator* in the 1790s, the first successful steam engine employed afloat was in this bucket dredger; it did not propel the vessel (which was towed into position), only the bucket chain, but it proves that the Navy's administration was not slow to appreciate new technology – when it worked. (J0410)

The rising population of these prisoners led to the other famous, or perhaps infamous, landmark of British naval ports, namely the prison hulks. The problem was vast, over 122,000 prisoners being taken between 1803 and 1814. Old worn-out warships had been used in peacetime as hospitals, lazarettos and receiving ships for seamen – treated no better than criminals according to the reformers – so it was a logical extension to employ them as cheap accommodation for those captured during the war. They were also used for civilian convicts and ships like the old 64-gun *Monmouth* (renamed *Captivity* in 1796) were fitted in a similar fashion, with the old gunports barred and gratings on deck. There were large numbers of hulks available, and many of the less serviceable prizes finished their days as prison ships.



DRAUGHT OF TRANSPORT PROPOSED.

The draught was used for the *Aid* and *Assistance* in 1808, and in slightly modified form for the *Chatham*, *Portsmouth*, *Diligence* and *Industry* between 1810 and 1814. Of 313 tons, they were mainly employed by the Dockyards. A pencil alteration shows a mercantile-style bow, without the full head, but with an animal figure on the stemhead rather than the austere scroll-head of the finished draught; there is no evidence it was adopted for the ships as built. (J6801)



TRIUMPH LAZARETTO. SKETCH OF HOUSING AS FITTED. MILFORD YARD 7TH APRIL 1814.

Among the many roles to which superannated warships were reduced was the lazaretto or lazaretto, a hulk employed as a place of quarantine for those who had potentially been in contact with communicable diseases. The old 74 *Triumph* of 1764 shown here was converted at Plymouth in 1813 and sent to Milford. The fitting out was much the same as other accommodation hulks like receiving ships and floating prison, including bars on the ports (quarantine was both compulsory and unpopular), with a roof over the weather deck. (J3031)



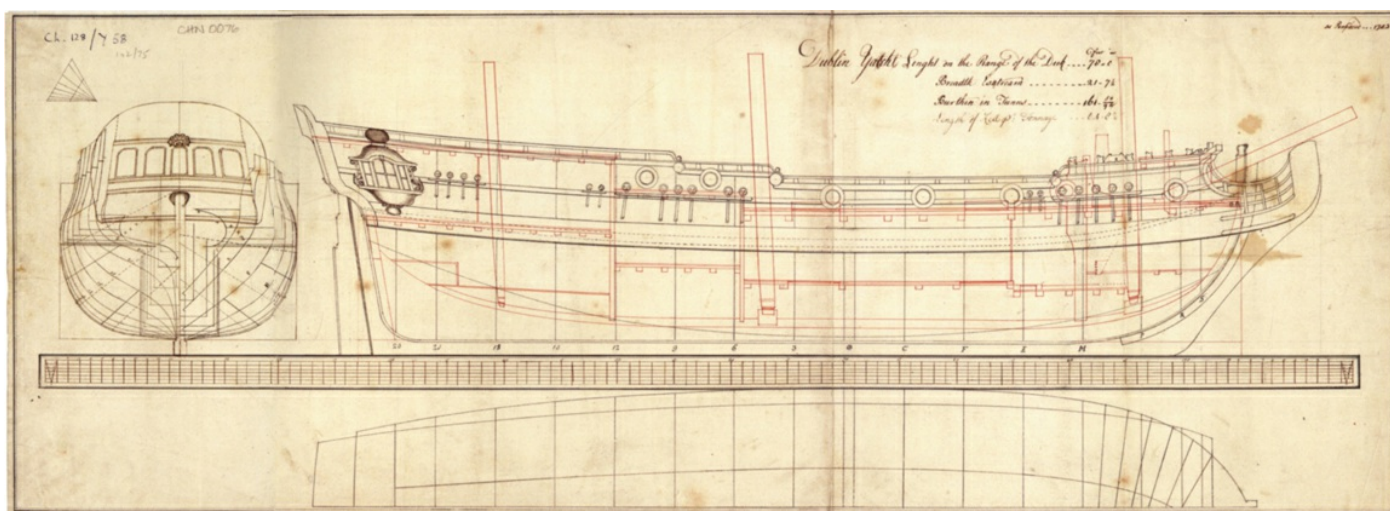
A POCOCK painting of George III's largest yacht *Royal Sovereign* conveying the restored French monarch Louis XVIII back to France on 24 April 1814 escorted by a British and Russian squadron. Looking much like a small sloop, the yacht qualities are mainly to be seen in the very elaborate decorative work, but out of sight below decks there was a magnificent spiral staircase and sumptuous apartments. (BHC3612)



NICHOLAS POCOCK'S painting of Plymouth Dockyard in 1788. A masting hulk and a couple of dockyard hoys are prominent in the foreground. (BHC1914)

At the opposite extreme of the social scale, the Navy was also responsible for the transportation of the royal family. Unlike their Stuart predecessors, the Hanoverians were not enthusiastic sailors – and indeed few people in the eighteenth century went to sea for fun – so the royal yachts tended to be fast (to keep journey time to a minimum) as well as seaworthy (for the maximum safety of important bodies). They were also, of course, luxuriously appointed and elaborately decorated. Not being exposed to rigorous service, they generally enjoyed long lives (the *Mary* of 1728 nominally lasted until 1816), although total rebuilding disguised their real lifespan. In general, one new yacht per reign was the norm, but their longevity meant that more than one was available at any time; the *Royal Sovereign* of 1801 was designed to replace the ageing *Royal Charlotte* of 1750. The eighteenth-century yachts were similar to sloops or Sixth Rates, and grew in size from about 200 tons to 300 tons. Although they no longer had a naval role in wartime, they were commanded by post captains and formally listed as Fifth or Sixth Rates.

Smaller and less luxurious versions were employed as personnel transports by the Admiralty, each dockyard had one for the service of the commissioner and principal officers, while another was at the disposal of the Irish government.



DUBLIN YACHT AS PROPOSED 1753.

Yachts were the official limousines of their day, and they were the perquisites of Admiralty Dockyard and a few non-naval officials, including the Viceroy of Ireland for whom this yacht was built in 1753. Renamed *Dorset* soon after launch, like so many yachts, she enjoyed a long life and was not broken up until 1815. A relatively large example of the type, this yacht was ship rigged. (J8432)



ALL the naval yards acquired over time an accumulation of old warships reduced to mastless hulks and employed for various forms of floating accommodation. However, the large numbers of enemy seamen captured during the wars of 1793–1815 led to many more hulks being converted to prison ships. This painting by Ambrose-Louis Garneray, himself a prisoner of war, shows a line of prison hulks in the upper reaches of Portsmouth harbour at the height of the wars (about 1810). The prisoners were kept below behind barred ports, while the commandant lived on the old quarterdeck. When not in use, hammocks were stowed in the two shed-like structures on deck, and the penthouse forward was the prisoners' latrine. The barricaded area in the waist was where the prisoners were allowed some daily exercise. (BHC1923)

TABLE 32 Typical Service Craft

Ship	Yard built for	Date launch	Length ft-ins	Breadth ft-ins	Burthen tons	Armament
'Steam engine'	Portsmouth	1802	99-6	26-6	315	Bucket dredger
Chatham Hulk	Chatham	1813	145-4	46-9	1691	Purpose-built sheer hulk
Aid	—	1808	104-0	26-0	313	Transport; became survey ship 1817
Argonaut	Chatham	1796*	166-0	44-8	1451	Hospital ship, ex-French 64 taken 1782
Captivity	Portsmouth	1796*	159-6	44-4	1369	Prison ship, ex-Monmouth, 64 of 1772
Triumph	Milford	1814*	171-3	49-3	1793	Lazaretto, ex-74 of 1764
Royal Sovereign	—	1804	96-0	25-8	278	Royal yacht
Dorset Yacht	Ireland	1753	78-0	24-7	232	Irish Government yacht

* Date converted.

GREAT LAKES WARSHIPS

The strategic importance of the Great Lakes to the defence of Canada led to a dramatic upsurge in naval shipbuilding after 1812. Prior to the American declaration of war, the lakes had been patrolled by a Provincial Marine, based on Kingston, Ontario and Amherstburg on the Detroit

river, using shallow-draught, lightly armed vessels largely intended for army transportation. Despite the fact that the initial American invasion was defeated, the poor performance of the Marine provoked the governor, Sir George Prevost, to request the help of the Royal Navy. Forces were sent from Britain and from the North America squadron at Bermuda, and placed under the command of Commodore Sir James Yeo.⁴³

The key to Canada was control of the lakes and dominance of these inland seas depended on building a substantial squadron, since the US Navy had also been drafted in to perform the same function on the other side of the water. The result was a freshwater arms race that quickly escalated from corvettes like the *Montreal* of 426 tons, through frigates of 1200 tons to mammoth three-deckers of 2300 tons. Pre-war vessels had shown a very reasonable concern for the shoal nature of the coasts and harbours, but were leewardly as a result. The new designs went for speed and firepower, so had sharp and relatively deep hulls. They had no need for the vast stowage of potable water that dominated the hull designs of sea-going warships, so although deeper than previous lake vessels they were shallow by conventional standards.

They were also completely up to date with regard to a number of other design features. They exhibited the flat sheers and wall sides just coming into fashion for saltwater ships. Furthermore, they had flush upper (so-called 'spar') decks, round bows for the three-deckers and only one level of, closed, stern gallery (although the later *Wolfe* class added a poop and flag officer's accommodation). In construction, they were largely fastened without conventional knees, which was a product of shortages of 'grown' timber; but similar scarcity was also affecting the home dockyards, who had responded with various techniques to replace them, and Kingston seems to have been abreast of all these developments.

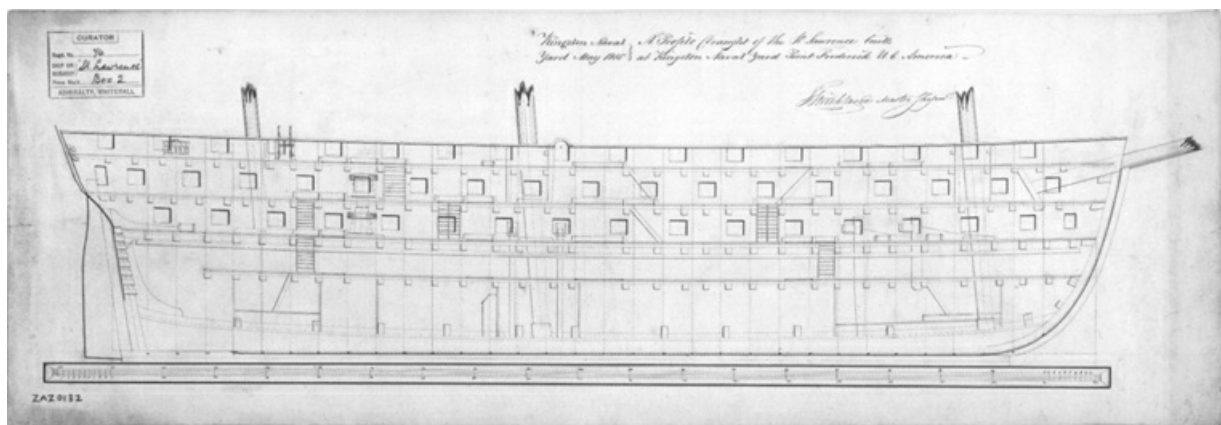


One of the most successful operations on Lake Ontario was the attack on Oswego, 6 May 1814. This print, based on an eyewitness view, shows the main British ships on the lake. In the foreground is the big double-banked frigate *Prince Regent* (58 guns) with the 14-gun brig *Star* seen through the rigging, and the *Princess Charlotte* (40) on her starboard quarter. The other vessels, left to right, are *Charwell* (13), *Montreal* (21), *Niagara* (21) and *Magnet* (11). (PAH8148)

Trees were available in abundance, but seasoned timber was another matter. Nevertheless, the real restraint on shipbuilding seems to have been the small numbers of experienced shipwrights on hand. When the Admiralty devised a scheme to build a pair of prefabricated frigates that would be sent to Canada in frame, Prevost protested that the supply train up the St Lawrence was already overburdened, and that in any case all his shipwrights were working at full stretch on the 102-gun *St Lawrence*. However, the parts of the *Psyche* and *Prompte* were sent, and one set of frames was forwarded to Kingston, where *Psyche* was launched the day after peace was signed.

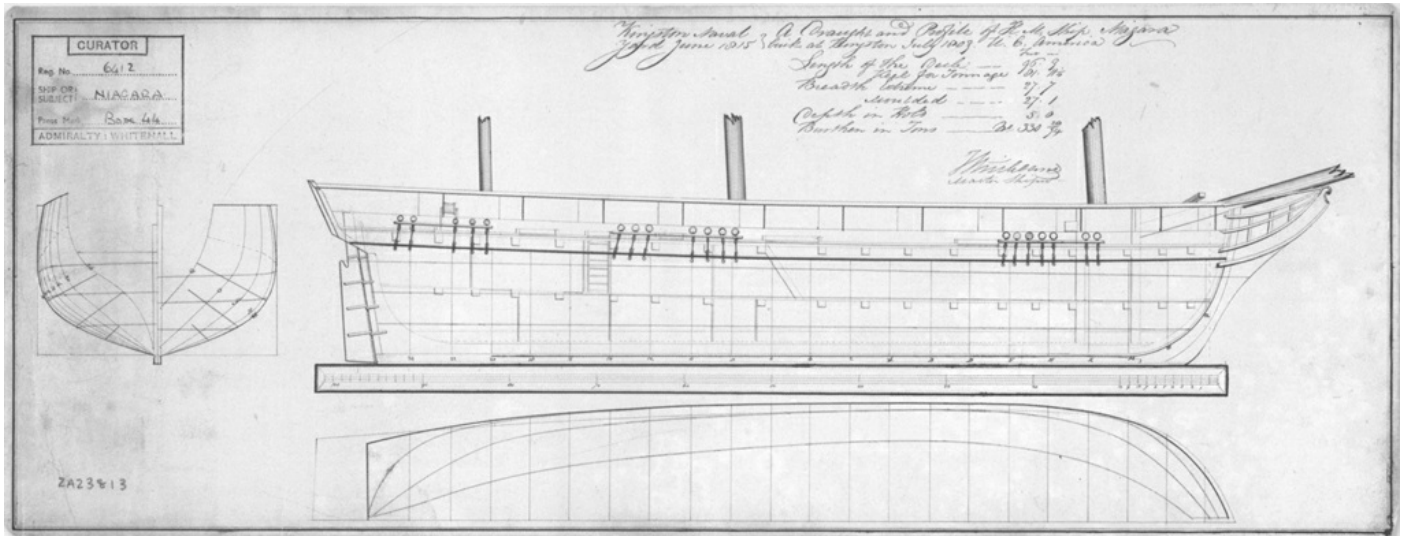
The British had experience of prefabricating Hamilton gunboats, but it was an amazing leap to a 750-ton ship. During final assembly, the gangways were filled up to produce a 56-gun ship, armed with lightweight 24pdrs. Flying the broad pendant of the new Commodore, Sir Edward Owen, the ship made two voyages in the spring of 1815 before being laid up.

Although British squadrons were defeated at Lakes Erie and Champlain, these were peripheral to the main theatre on Lake Ontario, where the big programme of construction, in territory little more than wilderness, ensured that Canada remained British.



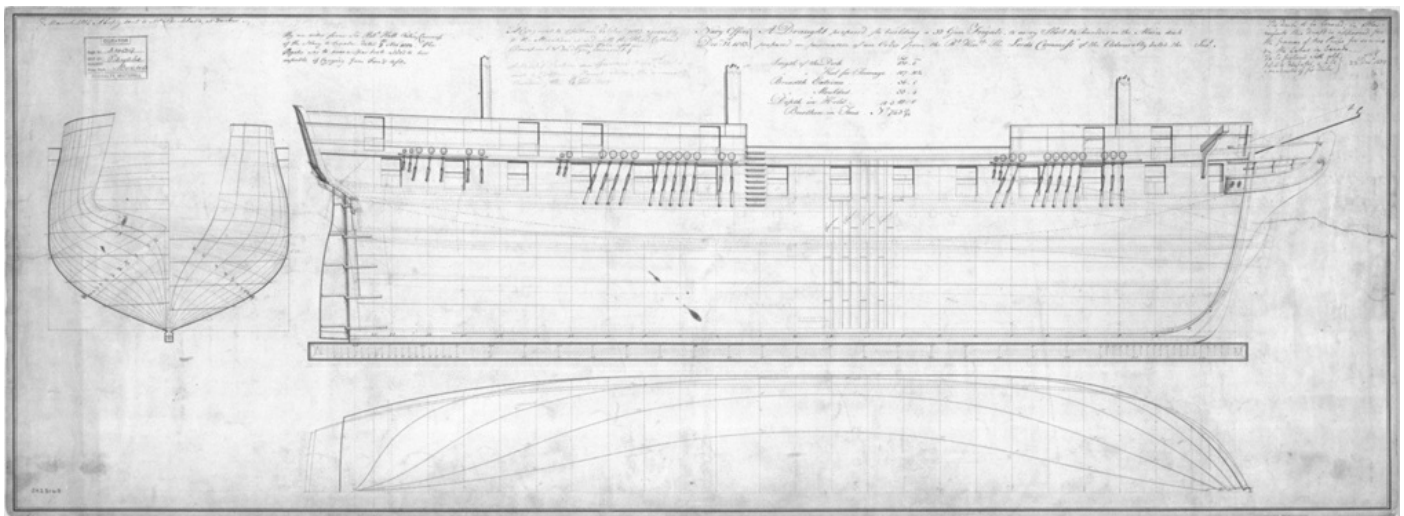
A PROFILE DRAUGHT OF THE *ST LAWRENCE* 112 GUNS, BUILT AT KINGSTON NAVAL YARD POINT FREDERICK U.C. [UPPER CANADA] AMERICA. KINGSTON NAVAL YARD MAY 1815.

So rapid was the escalation of naval ambitions on Lake Ontario that the British-American arms race, skipping conventional two-deckers altogether, soon arrived at First Rates as powerful as anything in the seagoing fleets. Launched in September 1814, *St Lawrence* was the only three-decker on either side to see service and she made a couple of cruises wearing the broad pendant of Sir James Yeo. She was regarded as a good sailer; and until the Americans could complete a similar ship, gained complete ascendancy on the lake. Note the relatively low depth in hold, the main difference from a seagoing equivalent. (J1862)



A DRAUGHT AND PROFILE OF HM SHIP NIAGARA BUILT AT KINGSTON, JULY 1809. U.C. [UPPER CANADA] AMERICA. KINGSTON NAVAL YARD JUNE 1815.

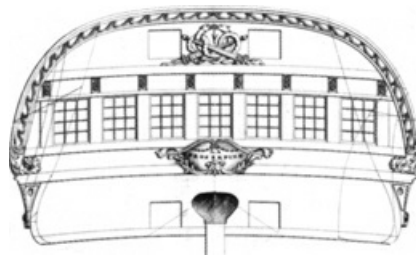
Built as an answer to the American brig *Oneida*, this ship was originally called *Royal George* and may be regarded as the first shot in the naval arms race on the Great Lakes. Built during one of the periods of tension with the United States that predated the American declaration of war in 1812, *Royal George*'s armament of twenty 32pdr carronades temporarily made her the most powerful ship on the Lakes. (J0048)



A DRAUGHT PROPOSED FOR BUILDING A 32 GUN FRIGATE TO CARRY SHORT 24 POUNDERS ON THE MAIN DECK PREPARED IN PURSUANCE OF AN ORDER FROM THE RT HONBLE THE LORDS COMMISSRS OF THE ADMIRALTY, DATED THE [BLANK] INST NAVY OFFICE, DECR 21ST 1813.

One of the most extraordinary undertakings of the whole naval war was the construction of two 750-ton frigates in Britain, their disassembly and transportation to the Canadian lakes. It was believed that a shortage of skilled labour was holding up construction, but in fact the portage of the prefabricated ships up the St Lawrence was a far greater strain on the war effort. Only the *Psyche* was eventually completed, and modified to include a full spar deck. The curious appearance of the gunports is a product of a late decision to lower the height of the decks, for which the ports had to be redrawn. (DR2409)

FRANCE



Although the second largest in the world for much of the period, the French navy's fortunes rose and fell dramatically throughout the eighteenth century. Time after time it began its wars well, given a flying start by the *inscription maritime* (a register of seamen which allowed the rapid manning of a fleet by limited conscription during mobilisation); but it often gained a strategic ascendancy, only to find itself defeated in some decisive engagement and lose the initial advantages, usually reflected in disappointing peace terms. Modern historians explain this repeating pattern by reference to the relatively antiquated system of state financing in France, and especially the government's inability to raise sufficient credit to pursue a long campaign. As a result, a few years into any war found the navy's organisation struggling with an acute shortage of funds to fit out fleets to required standards and in adequate numbers. Such ill-prepared squadrons became relatively easy targets for a British navy that tended to improve as the war progressed, because its strategy emphasised keeping the seas, which gave both officers and crews better opportunities to hone the necessary skills of shiphandling and squadron manoeuvres. As a result, France failed to win a decisive victory in any major fleet engagement for the whole of the century, and only occasionally managed to gain the ascendancy in squadron-size encounters.

The War of American Independence was undoubtedly the French navy's finest hour. Although it needed the fleets of Spain, the Netherlands and the Armed Neutrality of the North to achieve it, the French navy wrested control of the seas from the British long enough to ensure that the Franco-American armies could win the land campaign without interference from the Royal Navy. In action the French had appeared well drilled, their gunnery and seamanship better than that usually encountered by the British, and their ships, larger and more powerfully armed, were the admiration of their opponents.

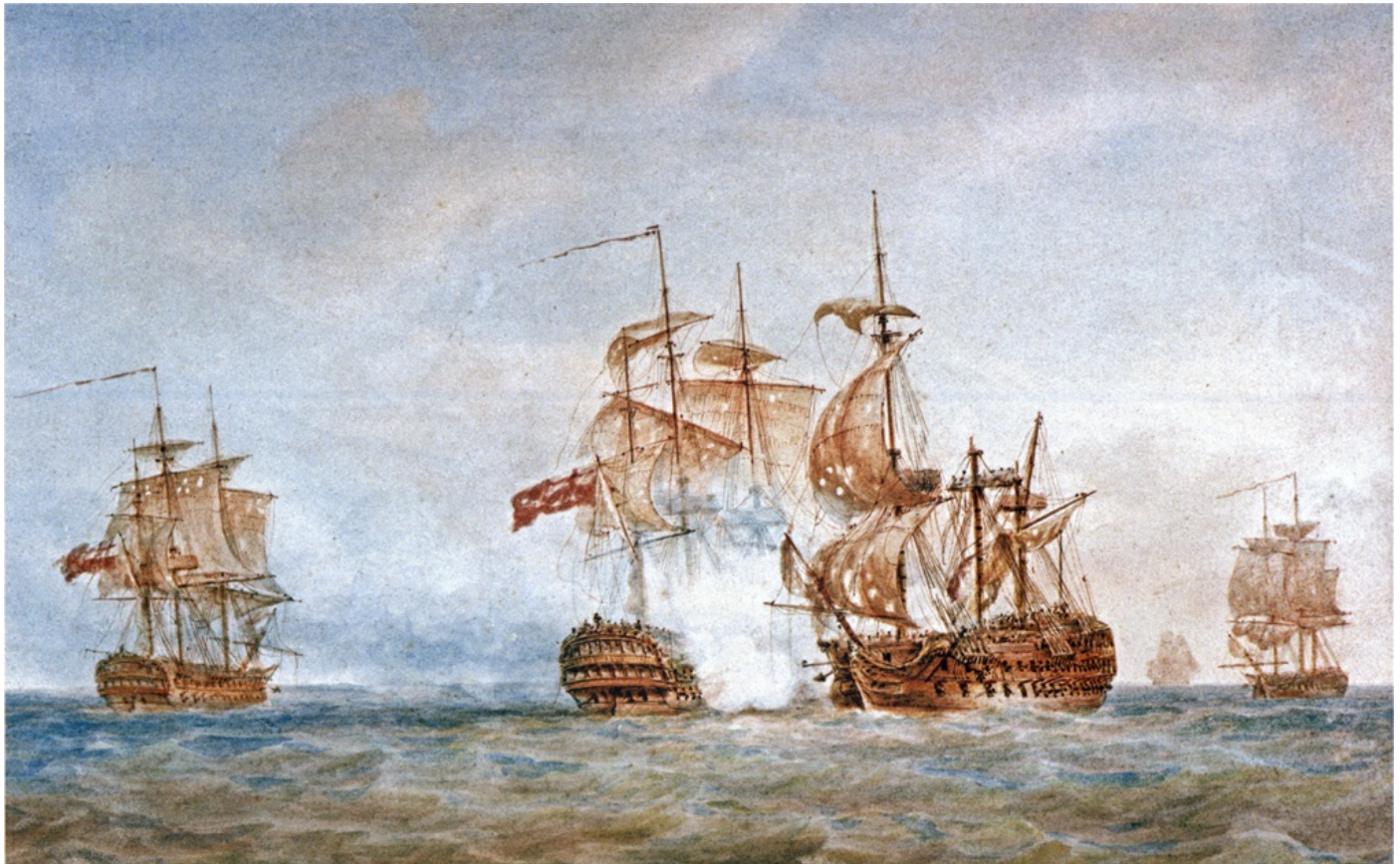
The French navy had a reputation for being a 'scientific' force, and in terms of the numbers of treatises and manuals published on every aspect of naval affairs, this was certainly the case. The most elaborate fleet tactics and manoeuvres were endlessly discussed in print, much of it devoted to how an admiral could extract himself from a battle that was not going to plan or which he had not wanted to fight at all. There was an accepted French doctrine of seapower which subordinated the destruction of the enemy to the larger strategic 'mission', the most successful example being de Grasse's fight off the Virginia Capes in 1781, which was far from conclusive as a sea battle but prevented Graves's fleet from relieving Cornwallis's besieged army at Yorktown. For all the theory, most of the tactical innovation from the mid-century onwards was achieved at sea by the empirical British – a slightly comical exchange of letters in the Napoleonic *Moniteur* expressed genuine puzzlement that a nation which had produced only 'one contemptible work on naval tactics' (and that by a landsman) could be so successful at sea.

A similar situation applied in the dockyards. Unlike British shipwrights, who were regarded by many naval officers as little better than jobbing carpenters, French *constructeurs* were formally trained and given the best available grounding in the theory of naval architecture. Unfortunately, most of the theory was of little practical use (and some was positively wrong), the excellence of French ships being more a product of their size than either their hull form or their structure. For most of the century France was outnumbered at sea, even when allied with the other Bourbon naval power, Spain. Like many before and since who found themselves in second place, France had to try harder, and did so with larger and generally more powerful ships for the same nominal rating. The huge new three-deckers, and especially the immensely powerful 80-gun ships, were objects of admiration and envy to most Royal Navy officers who encountered them during the American War, French battleships averaging about 27 per cent greater displacement than their British equivalents in 1780.

France's resurgent naval power was wrecked by the Revolution. The purging of the aristocratic officer corps and the dissolution of the marine artillery as elitist were only two of many doctrinaire decisions which destroyed not only accumulated experience but the morale of the navy. The class war extended to the dockyards, Brest being surrounded by a fervently royalist hinterland, while in 1794 Toulon was actually turned over to an Anglo-Spanish fleet by its anti-revolutionary inhabitants. The first time France contrived to send a major fleet to sea, under an admiral who had been a lieutenant shortly before the Revolution, it was soundly defeated at the Glorious First of June (1794), and a precedent was set for future fleet encounters. It was a similar story with single-ship actions, a string of British victories resulting in a moral superiority that was not challenged successfully for the rest of the war. These engagements were often presented as overcoming significant odds, but although the average French frigate was larger and more heavily manned, British frigates, unlike their battlefleet colleagues, usually fired a greater broadside weight of metal, thanks to the carronade revolution which had been so eagerly adopted in Britain. On land, revolutionary fervour may have been all that was necessary to carry France's armies to victories, but at sea technical skill and superior technology were more difficult to improvise.

The decline of the French navy in the 1790s can be quantified. In 1790 it has been calculated that France had a fleet aggregating 314,000 tons, about 19.6 per cent of the world's naval tonnage, placing it second only to Britain's 459,000 tons (28.7 per cent).⁴⁴ A string of defeats, and too little new construction, had reduced this to 182,000 tons, compared with a British figure of 569,000, in 1805. In numerical terms the battlefleet declined from a nominal 64 serviceable ships in 1793 to 44 in 1800. Napoleon began a massive programme of reconstruction during the short-lived Peace of Amiens in 1802, eventually co-opting subject states in the Netherlands and Italy into the effort. Alongside the huge resources committed to the invasion flotilla, 45 ships of the line were laid down in France and the low countries between 1804 and 1808. This almost kept pace with British dockyard activity where 50 ships were begun, but from 1809 to 1813 the Napoleonic empire accelerated the

building race with a further 57 battleships, 13 of which were to be three-deckers of the largest size.



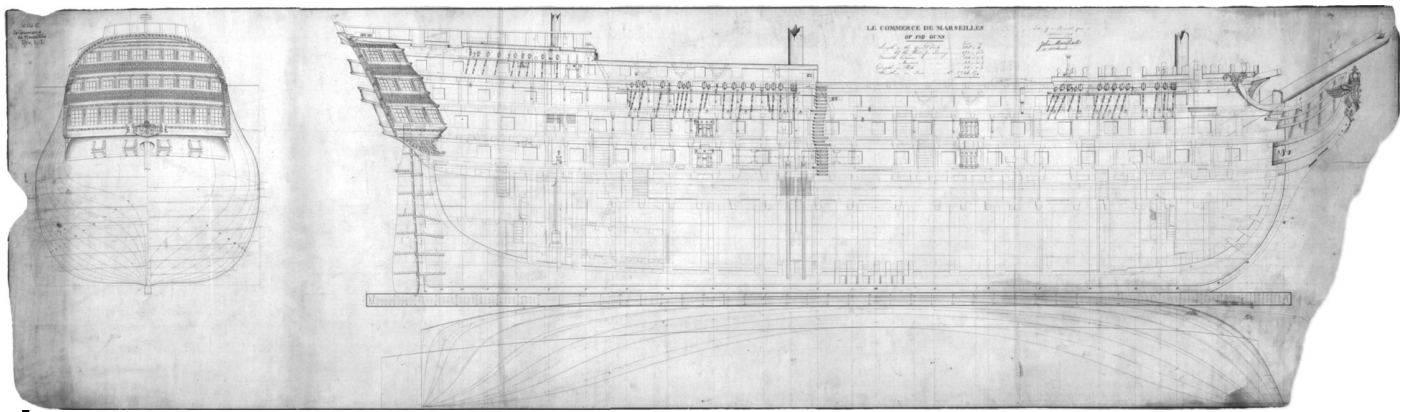
ONE of the largest of the French two-decker 80s, the *Guillaume Tell* was one of only two line of battle ships to escape from the debacle of the Nile. The ship was subsequently blockaded in Valletta, and finally captured by the *Foudroyant* when she tried to break out on 30 March 1800, thanks to a superb delaying action by the frigate *Penelope* and then the 64-gun *Lion*. This watercolour by Nicholas Pocock shows the final stage of the engagement, with *Foudroyant* close alongside. Renamed *Malta* in British service, she fought in Calder's Action, where she was one of the most heavily engaged and had to be sent home to refit; she subsequently served in the Mediterranean. French 80s usually had sixteen ports a side on the lower deck, although the foremost was regarded as a bridle port; nevertheless in British service *Malta* carried a pair of 68pdr carronades for these ports. (PW5878)

In practice this was a huge strategic bluff, since even Napoleon's resources were not equal to completing the programme, and even if all the ships had been launched, there was no known way of manning them all with real seamen. It was probably yet another tactic in the economic war, designed to commit the British government to unnecessary expenditure, and possibly even to bankrupt the state, since it was widely believed that Britain would go to almost any lengths to maintain its maritime supremacy. Although some British politicians were unnerved by the competition, the Admiralty was not moved, and responded with only 21 new orders for line of battle ships during this period; but from 1801 to 1810 completed nearly as much tonnage as the French empire (247,000 tons to 258,000) while capturing a further 167,000 tons. As a result by the end of the wars the French navy still totalled only 228,000 tons (plus 52,000 tons of allied shipping), while the Royal Navy stood at 616,000 tons, some 44.4 per cent of all the world's warship tonnage. French battlefleet numbers had recovered from the 1806 nadir of 35 to 76 in 1813, but very few of these ever went to sea as the British blockade had become close to a stranglehold.

THE FRENCH FLEET

By the beginning of the war the French navy had gone a long way towards rationalising its order of battle, eliminating the weaker rates and concentrating on the largest classes within each type. Thus the three-deckers built were of the 118-gun class, the biggest warships in the world in their day (and significantly greater in displacement and firepower than the nominally four-decked *Santisima Trinidad*, the Spanish colossus that many at the time, and since, believed was the largest ship in the world). A couple of slightly smaller 110-gun ships were constructed after 1804, but there were no equivalents of the British 98 – the very long French two-decker 80s were often employed in the same way as the latter but were considerably more powerful in broadside weight of metal. Small numbers of these 80s were built, principally as flagships for flying squadrons, and when captured by the British were highly prized. Even the regular 74 was far larger than their standard equivalent, known as the Common Class, although a handful of more powerful British 74s had been built in the 1790s. At the other end of the scale, not only had France ceased to build 64s and 50s, but by 1793 there were none left in frontline service.

In terms of its cruiser design, however, France was surprisingly conservative. Frigates armed with 12pdrs were still being built in the late 1790s, although the final few ships were large for their rating. There were a few experimental large ships introduced in the 1790s, mostly by designers from outside the traditional naval 'establishment', and some of these were armed with 24pdrs; but the vast majority built right down to 1814 were derived from a design by the famous Jacques-Noël Sané that dated from 1782. This ship, *Hébé*, was captured and became the prototype of the large British *Leda* class 38s as well as most French 40-gun frigates. In the 1790s there were also a small number of frigates, rated as 38s, which like British 36s carried twenty-six 18pdrs on the main deck.



L E COMMERCE DE MARSEILLES OF 120 GUNS. TAKEN OFF AT PLYMOUTH YARD, SEPTEMBER 1796.

When first taken at Toulon in 1793 this gigantic ship was a revelation to the British. With seventeen ports a side on each flat-sheered deck, the ship was probably the largest warship in the world. On the voyage back to Britain, the captain of the prize reported that her sailing qualities were remarkable for such a large ship, although her deep draught caused anxious moments when she was brought into Plymouth. However closer inspection revealed a very weak structure, and it was quickly decided that the ship would never be capable of the arduous cruising duties the Royal Navy required of even First Rates. After a brief career as a giant storeship, in which she came within moments of being wrecked, the *Commerce de Marseilles* languished as a hulk at Plymouth until being broken up in 1802. The draught shows only minor alterations for British service (the British main jeer capstan contrasts with the French design forward), but the French suction pumps have not been replaced, and the ship retains her pre-revolutionary decoration. (J1853)

For smaller craft, France was quick to see the advantages of the flush-decked ship sloop, and it was probably one of these, the *Bonne Citoyenne*, whose qualities persuaded the British to adopt the type more widely. Curiously, though, the French navy continued to build quarterdecked corvettes of a size and power that equated with the old 28-gun frigates Britain had stopped building in 1785. A number were captured and they suffered a poor reputation in their adoptive service, mainly for a lack of stability, although this was often exacerbated by the addition of more guns to the upperworks.

Flotilla craft, especially brigs and schooners were relatively conventional in size and form, although French privateers often revealed very sharp hull forms and large hulls for their armament. The other great French naval investment was in specialist craft for Napoleon's planned invasion of Britain, a force that became known as the Boulogne Flotilla. To this day nobody knows for certain how many were built, but even the early plans called for over 1200 vessels, divided into four main designs.

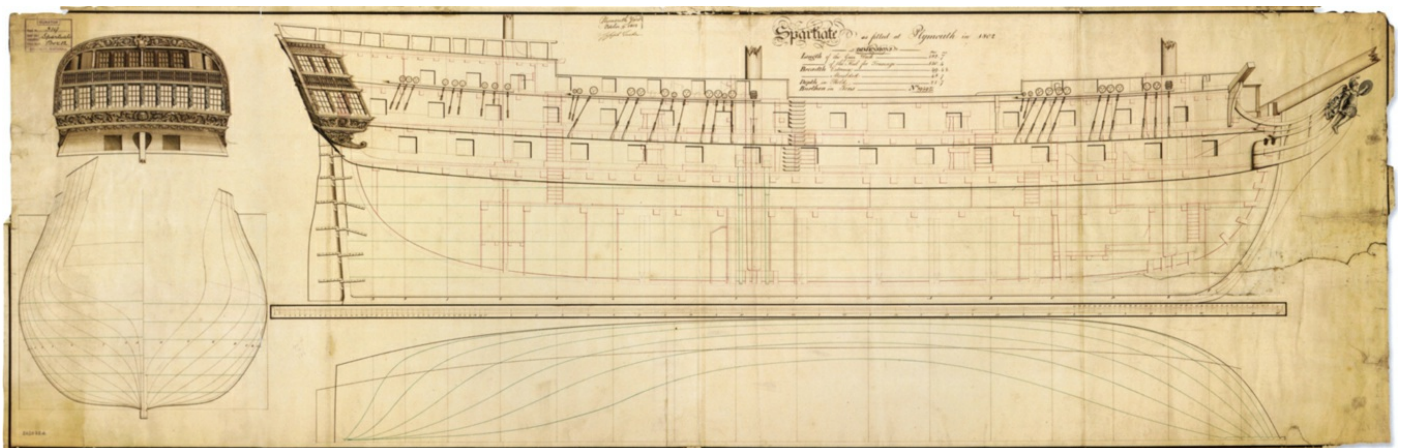
SHIP TYPES AND THEIR ROLES

French attitudes to the three-decker fluctuated with the navy's fortunes throughout the eighteenth century. The fleet that Choiseul rebuilt after the Seven Years War had emphasised big two-deckers as flagships, but the experience of the Ushant clash in 1778 indicated the value of even the small British 90s in battle and led to a large emergency programme of construction. Most were 110-gun ships, which were substantially bigger than British First Rates, but the prototype of a new and even larger 118-gun type was laid down at Toulon. She was launched in 1788 as the *Commerce de Marseilles*, to be followed in the next few years by another at Toulon and one at Brest.

When taken into British service the ship was a revelation. Although huge she handled surprisingly well, although she was still ungainly and with her enormous draught a nightmare in confined waters. There was great enthusiasm at the Admiralty for commissioning the ship, but she proved very weakly built, and so it was decided to send her to the West Indies as a giant storeship. She narrowly avoided being wrecked in a gale before she had left the Channel, and after she had fought her way back in to Plymouth, she sat out the remainder of the war as a hulk.



A FRENCH-MADE model at 1/60th scale of the 74-gun *Éole*, launched at Lorient in 1789. She was one of a standard type designed by Jacques-Noël Sané in 1782 and built in large numbers – ninety were completed throughout the wars down to 1814. Many were captured by the Royal Navy and their draughts suggest that they varied somewhat in dimensions and details – they were constructed over a long period in many yards and overseen by builders who were themselves designers, so they probably do not conform exactly to the British concept of a ‘class’, defined as ships built to the same draught. (F9223)



SPARTIATE AS FITTED AT PLYMOUTH 1802.

A typical large French 74-gun ship of the kind the Spencer Admiralty of the 1790s strove to match: her proportions, and indeed dimensions, are very similar to the *Kent* as lengthened. When captured at the battle of the Nile in August 1798, this 74-gun ship was brand new, having been completed at Toulon in March. She was ‘doubled’ early in the British attack and with *Theseus* to port and *Vanguard* to starboard, suffered heavily: twenty-seven major hits were recorded on the port side and forty-nine to starboard. The ship was not repaired immediately but was given a major refit from August 1801 and commissioned in March 1803, as shown in this draught. The internal fittings were anglicised – chain pumps and drumhead capstans being the most visible features – but the French decoration, including the classic ‘horseshoe’ stern favoured by the ship’s designer, J-N Sané, was retained. The ship’s sailing qualities were greatly admired – ‘she sailed like a witch’ according to one observer – and under British colours the ship fought at Trafalgar, but her active service was relatively short and she was laid up at the end of 1809. (J2588)

In 1793 there were two 118s and five 110s, but in this war the three-decker was of little value to the French navy. Its principal function, as the flagship and strong-point of a battlefleet, was nullified by the difficulty of assembling any sort of fleet in the face of the British blockade. Only

Villaret-Joyeuse in 1794 was able to use these ships as intended, when he had three 110-gun ships as well as his 118-gun flagship *Montagne* at the First of June battle with Howe. It might be argued that one of these, the *Révolutionnaire*, began the rot, when her misbehaviour led to damage serious enough for her to be forced to leave the fleet. The poor quality of both her gunnery and shiphandling was a major encouragement to the British in the conclusive action which followed.

Given the poor quality of both French seamanship and ship-stores in the 1790s, it is not surprising that two were wrecked: *Républicaine* in 1794 and *Révolutionnaire* in 1796. In the Mediterranean the one major operation mounted with a three-decker flagship ended with the famous conflagration of *L'Orient* in Aboukir Bay in 1798.

Once the French battlefleets were forced on to the defensive, there was not much of a role for three-deckers. It became increasingly difficult to get any force larger than a squadron past the blockade, and these were hunted remorselessly, if not always successfully, so a lumbering and leewardly three-decker was not much of an asset. It was attempted, however, Missiessy taking the new 118-gun *Majestueux* on his successful Caribbean raid in 1805, but Leissègues' attempt to repeat the exploit the following year with the his flag in the similarsized *Impérial* ended in disaster at San Domingo, where Duckworth's force of two-deckers captured or destroyed the whole French battle squadron.

Napoleon attempted to revive a genuine battlefleet strategy after 1805, laying down an impressive number of three-deckers: four in 1805–6 and thirteen in 1809–13. The 118-gun ships, beginning with the *Impérial* laid down in 1803 were even larger than their predecessors and carried 18pdrs instead of 12s on the upper deck. Few were even completed, and those that were saw no more action than the odd skirmish within random shot of the Toulon batteries. French divisional admirals came to prefer the better sailing qualities of 80-gun two-deckers for their occasional forays, and even Villeneuve's Combined Fleet was commanded from one of these, the *Bucentaure*; in fact, there were no French three-deckers at Trafalgar.

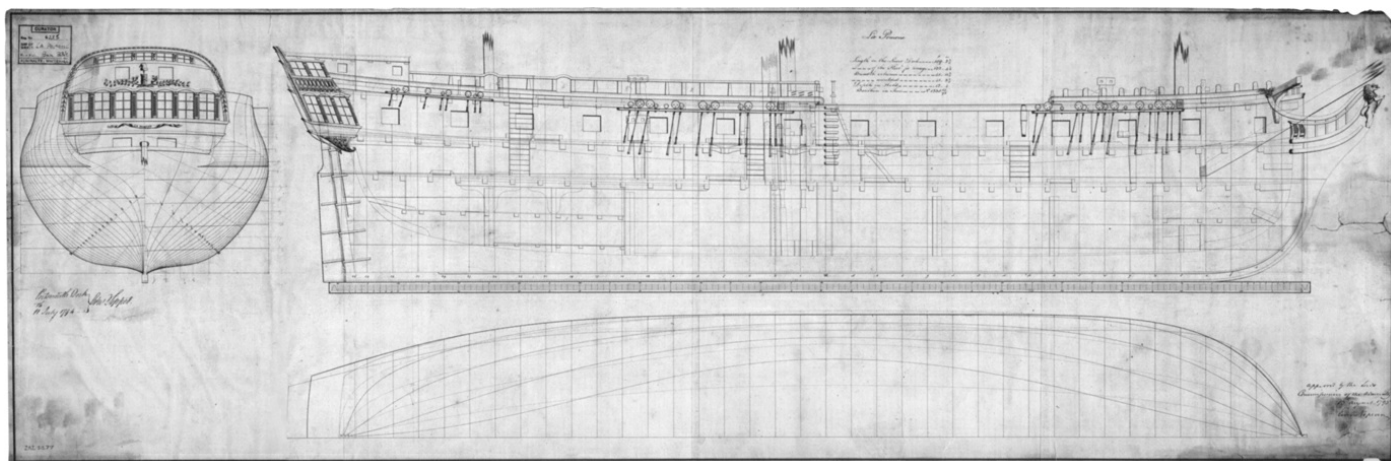
The big two-decker 80 was a French speciality. With a 24pdr upper deck battery, they were significantly more powerful than 74-gun ships; they were also longer, which tended towards higher speed, but were just as weatherly as any other two-deckers, thus avoiding the main drawback of a three-decker, its poor performance to windward. They were intended as secondary flagships and leaders for flying squadrons, so there were not many of them – eight in 1790, and since only four were laid down that decade and the British captured a number of them, there were only three left in 1805. However, they became a mainstay of the Napoleonic building programme, 24 being laid down between 1805 and 1812, compared with 42 standard 74s.

With sixteen lower deck ports per side (only fifteen were regularly armed), they were the most impressive two-deckers of the pre-Seppings world, and ships like *Sans Pareil*, *Canopus*, *Donegal* and *Malta* were highly prized by the British. Lieutenant Hoffman expressed the usual British surprise and admiration at the size of the *Tonnant*: 'this glorious ship of ships. When I took a perspective view of her gun-decks, I thought her an equal match for any ship afloat, and so she certainly was ...'.⁴⁵ Unfortunately, most of them would have benefited from Seppings' structural improvements, since they were rather too long for the wooden technology of the time, which made them prone to hogging, leaks and other problems deriving from structural weakness. In British service, where all-weather cruising was the norm, they required more time and money spent keeping them seaworthy than was usual with British-designed ships.

Much the same could be said of French 74-gun ships, which were also far larger than the norm at around 1900 tons burthen. Their numbers declined steeply during the French Revolutionary War from 54 to 30 in 1800, while the Napoleonic concentration on larger ships did little to add to the numbers actually reaching service. As part of the plan to mobilise all the shipbuilding resources of his empire, Napoleon extended the construction programme to the subject states. Yards on the Scheldt (Antwerp and Flushing), Genoa and Venice were all reorganised to make a major contribution, and since the first and the last of these suffered from shallow water, it was necessary to modify the standard deep-draughted French 74. The prototype for what became known as *the petite modèle* was designed by Sané, and completed in 1805 at Toulon as *the Borée*. Ships like the 1800-ton *Rivoli*, built at Venice in 1810 (and captured by the *Victorious* in 1812), and the slightly larger *Chatham* built from frames captured at Flushing in 1809, were of this design. Ships constructed at Genoa are generally believed to conform to this type as well, but the one 74 captured on the stocks in 1814, *Le Brillant*, was actually of conventional French dimensions.⁴⁶

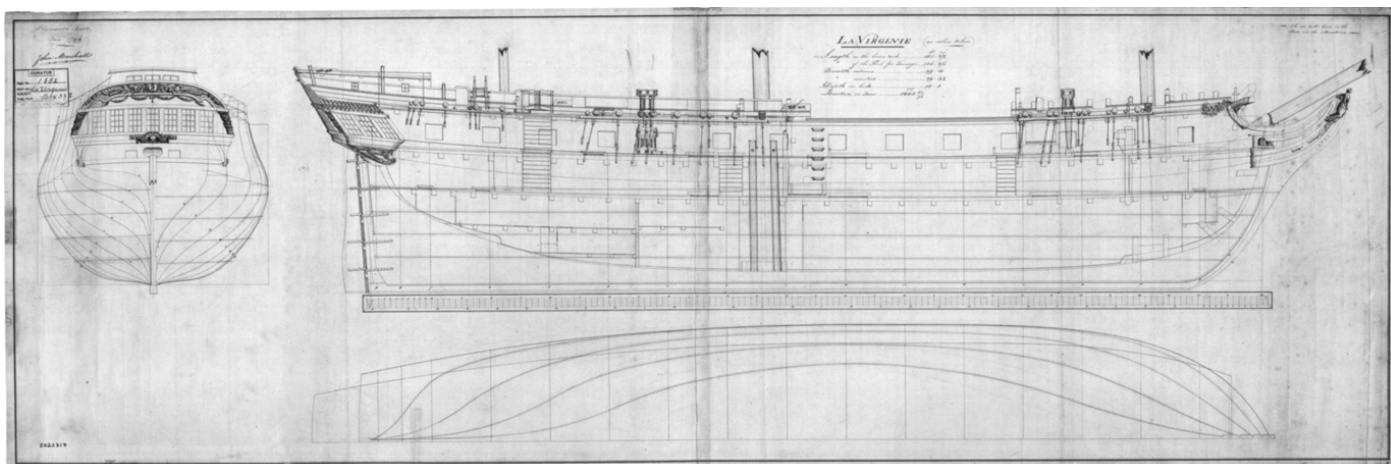
The last French 64-gun ship, an earlier *Brillant*, was broken up in 1794 (although the *Sphinx* survived as a floating battery at Rochefort until 1802). Thereafter all smaller ships of the line in French ser-vice were captures or requisitions. The occupation of Venice in 1797 produced eight 64s in a rather neglected state, but they were pressed into service mainly as transports for operations in the Ionian Islands and Egypt. They had very short active careers, many being lost to bad weather or the enemy, but two survived to be broken up in 1804 and 1806. Two further 64s were taken from the Knights of St John when Malta was invaded. One never left Grand Harbour, but the *Athénienne* was still fitting out when the French arrived and was lost to the British when the garrison finally surrendered in 1800. She was never completed to proper standards – she no copper sheathing, for example – and was wrecked in October 1806 after a short career in the British service. The final, and largely symbolic, accession of strength was the assimilation of the Dutch navy into the imperial forces in 1810, which included six old 64s.

France found very little use for small two-deckers like British 50s, but was an early advocate of large frigates intended for long-range commerce warfare. Plans for outsize 24pdr-armed ships stretched back to the Seven Years War, but had always fallen foul of budgetary restrictions (they cost as much as a small ship of the line). However, in the revolutionary atmosphere of the 1790s a number of experimental designs were approved. The first to come to the notice of the British was the *Pomone*, which was captured by Sir John Warren's frigate squadron in 1794. At nearly 1250 tons, there was plenty of room for her twenty-six 24pdrs and she proved a prime sailer; the British *Endymion*, a copy of the hull form, was long regarded as the fastest frigate in the fleet.



L A POMONE. PORTSMOUTH DOCK, 11TH JULY 1794.

The first 24pdr-armed frigate to fall into British hands, *Pomone* greatly impressed her captors. Not only was the *Endymion* built to her lines, but Sir John Warren, whose squadron had captured the ship, made her the flagship of his highly successful striking force. The draught shows her appearance as taken, but Warren soon had her refitted to his liking, the biggest change being the removal of the small poop. Subjected to the strains of near-continuous cruises, the ship's structure rapidly deteriorated, and by 1799 she needed a complete reconstruction. There was no dockyard capacity for this, and as a temporary measure she was reduced to 18pdrs and the spar-plan of a 38; but she was not thought worth repairing during the Peace of Amiens and was broken up in 1802. (J5476)

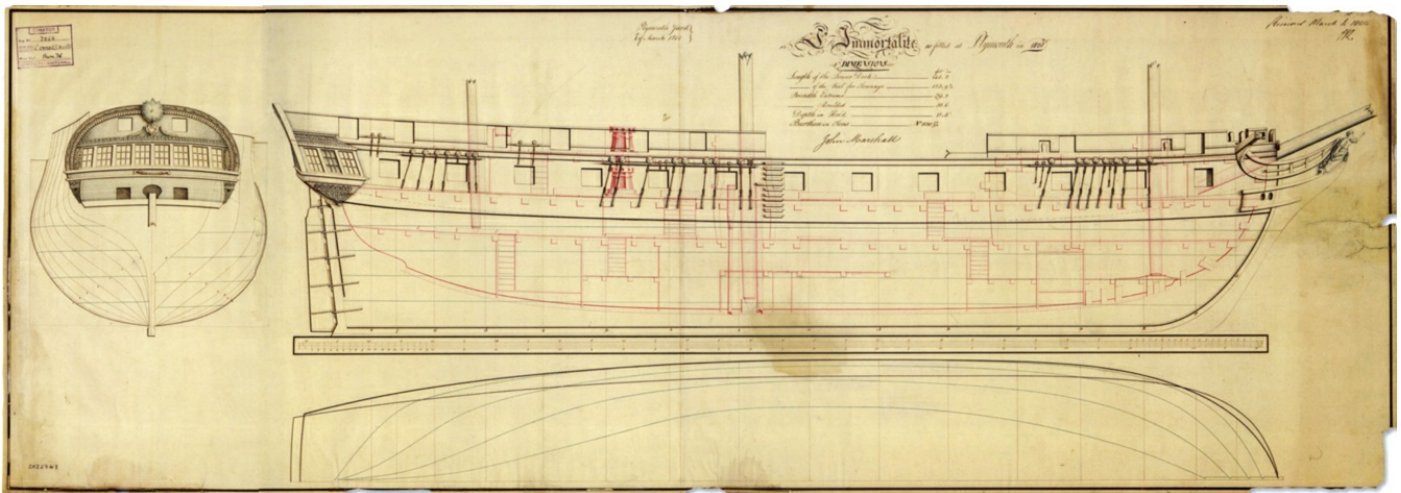


L A VIRGINIE (AS WHEN TAKEN). PLYMOUTH YARD MAY 1796.

By the 1790s the most common French frigate was a nominal 40-gun ship built to a specification standardised in 1784, producing a ship a little short of 1100 tons by British calculation. There were a number of *constructeurs*, but the most successful was Jacques-Noël Sané, whose designs provided the vast majority of frigates, including the vastly influential *Hébé* to which the British *Leda* class owed their lines. Although the specification was similar, the large quantities of French frigates in Royal Navy service reveal that they varied in detail – even those by Sané – and some were more highly regarded than others. *Virginie* was the first of twelve frigates to this particular design, built between 1793 and 1802. Her sea service lasted until the beginning of 1810, but the ship required considerable strengthening late in her career. (J5490)

Pomone, launched in 1785, does not appear to have been designed for 24pdrs, but there were two designs, one larger and one smaller, which were. When captured neither the 1180-ton *Résistance* nor her sister *Vengeance* were thought capable of carrying the heavier calibre. The other pair were a different matter: when launched in 1794 *La Forte* was easily the largest frigate in the world, with fifteen usable ports on the broadside of a main deck 170ft long, and not exceeded in size until the American *Constitution* class a few years later. She and a later sister, *L'Egyptienne*, were both captured by the British, although neither enjoyed a long career.

Although an evolutionary cul-de-sac, one curious hybrid also played a part in the French 24pdr frigate story. A class of *frégate-bombardes* was designed by P-A Forfait and nine of these were launched in Atlantic yards between 1794 and 1796. Intended to combine a 12in traversing mortar ahead of the foremast with a 24pdr main battery (20–24 guns), at just over 1000 tons they were too small for the armament and they were generally converted to 18pdrs and the mortar removed (in many cases they were never even mounted). Judging by the *Immortalité*, captured in 1798, they only had 24 broadside ports, which made them anomalous in the ranks of either French or British frigates, although arming the bridle ports made the *Immortalité* a 36 in Royal Navy service.



L'IMMORTALITÉ AS FITTED AT PLYMOUTH IN 1800. PLYMOUTH YARD, 1ST OF MARCH 1800.

One of a curious class defined as *frégate-bombardes*, this design originally carried twenty 24pdrs, plus a 12in mortar ahead of the foremast, although it is not certain than any were so fitted. Reduced to 18pdrs in British service, the biggest shortcoming of the class (her sister *La Désirée* was also captured) was the small capacity of the hull, which restricted stowage and effectively curtailed range. The ship was confined to Channel operations, but as the flagship of Captain Edward Owen's anti-invasion squadron was very active for a few years after 1802, although her poor structural state caused her to be broken up in 1806. (J5735)



A 1/96 scale model of the frigate *Revolutionnaire*, one of a class designed by Pierre-Alexandre Forfait which represented a slightly larger alternative approach to frigate design than the standard Sané specification. Captured when almost brand new in 1794, the ship built a superb reputation for speed under sail – in October 1799 the large, very sharp privateer *Bordelais* was chased for nine hours in a full gale, the pursuit covering 129 miles, before the privateer was forced to surrender. (F5852-002)

One final French contribution to the development of big frigates needs to be mentioned. Although the concept of a cut-down line of battle ship was neither original nor a French monopoly – even if the term *rasée* was universally used – the conversion of five small and crank 74s around the beginning of the war led to the British responding with the cut-down 64s of the *Indefatigable* type. The French ships were very unsuccessful, probably because the process of reducing tonnage turned a lack of stability into an excess. Those not lost to stress of weather were rapidly broken up.

The favourite French frigate of this period was rated at 40 guns, with a main battery of twenty-eight 18pdrs. In fact from 1786 there was a plan to standardise on one type, the approved model being Sané's famous *Hébé* of 1782, the first French 18pdr frigate. More ships were built to his draughts than any other, including the *Virginie* reproduced here, so they were the nearest thing to a standard class. However, although in terms of dimensions most French 40s look like one design, there were actually variations to a greater or lesser degree on the basic Sané specification, some by the master himself and others by disciples like Rolland. Furthermore, there was an alternative tradition, represented by designers like Forfait and his followers Pestel and Gauthier, who produced a somewhat longer ship with a notably sharper midship section. That both traditions co-existed until 1815 proves that the French navy could not determine which offered the greater advantage. Both were probably

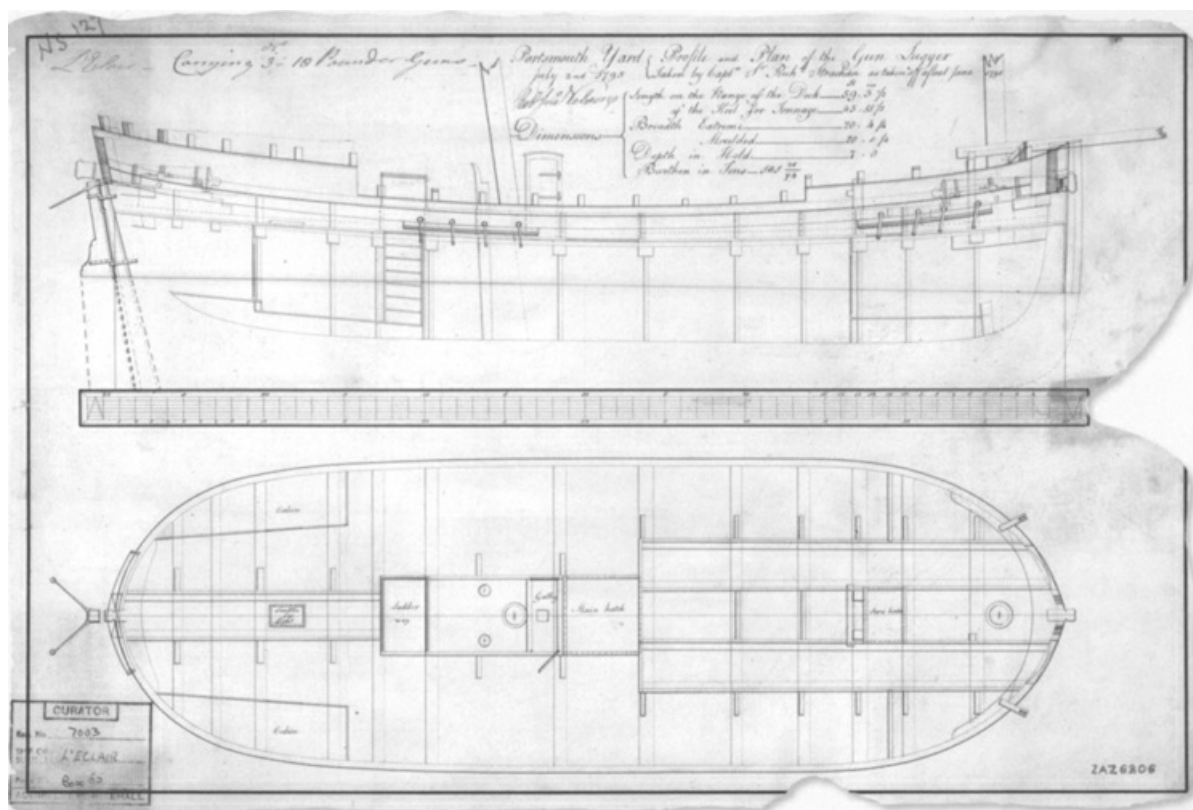
satisfactory, and it is significant that during the Napoleonic revival no need was felt for a larger or more powerful frigate design.

France lost huge numbers of 18pdr frigates to the British so despite considerable building programmes fleet strength did not increase as much as one would expect; there were 19 such ships in 1795 and still only 24 by 1810. In 1793 the backbone of the French cruiser force remained the 12pdr frigate, most of which were as large as British 18pdr 36s at nearly 900 tons. Their numbers declined steeply in the 1790s, from 47 at the beginning of the decade to 15 at the end, and the type was almost extinct by 1805. This was partly the result of prodigious losses but also the fact that only a dozen or so 12pdr frigates were added after the outbreak of war, and most of these were built outside the principal naval ports to designs by less favoured architects. *Chiffonne*, launched at Basse-Indre in 1799, was the last of all.

French frigates performed the same tactical scouting role as their British counterparts, whenever divisions of the battlefleet contrived to escape the blockade. Otherwise, they were mainly employed in commerce-raiding and later to supply and support the few remaining distant French colonies. In the former role, when organised into squadrons of up to four ships, they proved a potent weapon. Their effectiveness, however, was often compromised by the navy's general lack of seagoing experience. In 1806, for example, Commodore Leduc's attack on British Spitsbergen whaling with three frigates and a brig was compromised by a serious outbreak of scurvy, a problem long since solved in the Royal Navy. Nor were the ships themselves ideal for long-range cruising since their shallow, sharp hulls could not stow the same amount of water and provisions as a British ship of the same overall size.

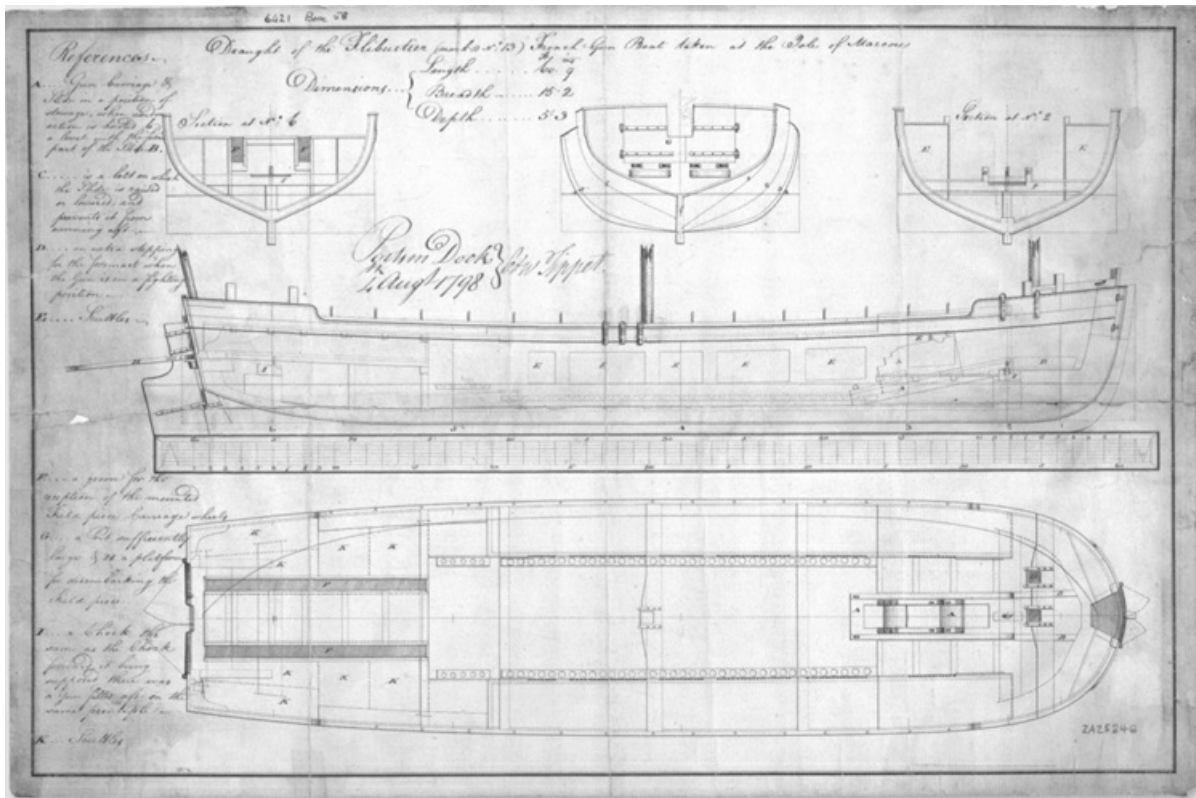
THE BOULOGNE FLOTILLA

IN terms of the resources expended on it, a major feature of the French Napoleonic navy was the so-called Boulogne Flotilla of specialist craft intended for the invasion of England. Although the British themselves had developed both the technology and the expertise to organise fairly large-scale amphibious operations, landing a whole army against the efforts of the world's leading naval power was a different order of challenge. At first large numbers of coastal and inland waterway craft were requisitioned, and given basic conversions; even vessels like the 'gun lugger' *L'Eclair* were clearly based on existing coastal types.



PROFILE AND PLAN OF THE GUN LUGGER TAKEN BY CAPTN RICHD STRACHAN AS TAKEN OFF AFLOAT JUNE 1795. PORTSMOUTH YARD, JULY 2ND 1795.

Before the organisational powers of Napoleon were brought to bear, French plans for the invasion of Britain involved a range of odd craft, most converted from, or inspired by, local trading craft. *L'Eclair*, lugger-rigged gunboat, carried two fixed forward firing 18pdrs and another aft, all on slide mountings; the forward guns were run aft as far as the slides would permit when not in action to improve sea-keeping. (J0576)



DRAUGHT OF THE *FLIBUSTIER* (MARKD NO 13) FRENCH GUN BOAT TAKEN AT ISLE OF MARCOU. PORTSMOUTH DOCK 4TH AUGT 1798.

In July 1795 Sir Sidney Smith's frigate squadron had seized and fortified the tiny islands of St-Marcouff off the Cherbourg peninsula, where they became a base for attacks on the French coasting trade. After years of suffering this insult, in May 1798 the French government deputed a portion of the invasion flotilla to attack the islands, in what may have been a large-scale rehearsal for the planned landings in Britain. The assault employed over fifty of the typical invasion craft carrying around 5000 men, and was led in person by the man who devised them, a soldier from Antwerp called Muskein. It was a total disaster; even though the wind was so light the defending British warships could not intervene, and one of the spoils was the *Flibustier*. A *bateau-cannonier* of the Muskein type, built at Dunkerque two years earlier; the boat was originally simply numbered (13), but was named early in 1797. Large numbers of these were to be built in the succeeding years, the chief feature being a stern ramp for landing a field gun. There is no evidence the captured boat served in the Royal Navy. (J0012)



A coloured aquatint celebrating the capture of a couple of French 'gunbrigs' (actually *chaloupes-cannonières* identical in all significant features to the *Crache Feu*) by the frigates *Tribune* and *Hydra* in January 1804. The rig is clearly depicted while the stern view of the vessel to the right shows the gunport in the transom. In the broadside view, there are two long guns side by side but trained fore and aft in the waist. Note the sweeps lashed to the quarters. (PW4754)

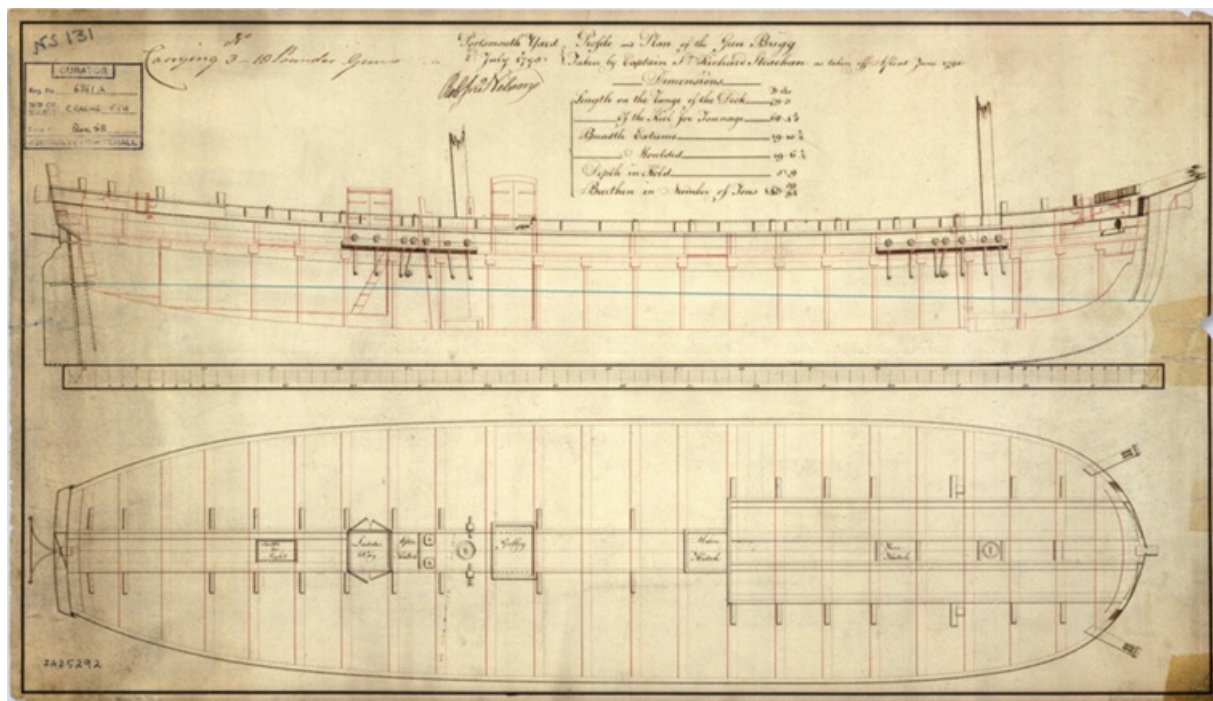
Before long, however, it became obvious that special designs were needed, and in large numbers, so standard draughts would be necessary. In the event, there were to be four main mass-produced types. The smallest was a long, low open boat called a *péniche*, intended to carry 66 troops and two howitzers or a small mortar; roughly 64ft by 11ft, they drew only 4ft, and although a lug rig (handled by a naval crew of 5) might

make them fast in sheltered waters, they were bound to be vulnerable in a seaway. At least 450 were planned.

To carry horses, artillery and larger equipment there was a *bateau-cannonier*, which was much the same length as the *péniche* but broader and decked. Also lug-rigged, the boat's capacity was 106 troops, 2 horses, a 24pdr siege piece, a howitzer and a field gun, and it was provided with a stern ramp for unloading. An early example of these was the *Flibustier* captured at St-Marcouf in 1798, which had a provision for landing a field gun over the stern. Like the original *péniche* design, it was the work of an Antwerpier called Muskein, who had served with the Swedish Inshore Flotilla and must have been inspired by the ideas of the famous af Chapman who designed its unique craft. Again, about 450 of these were planned initially.

The third type was described as a *chaloûpe-cannonière*, of which the *Crache Feu* was an example. They were altogether larger, and although still shoal-draught, were rather more seaworthy under their brig rig. Original planning called for about 350 of these to be built. Most powerful of the invasion craft was the *prame*, a form of shallow-draught corvette intended to escort the flotilla across the Channel. Measuring 117ft by 26ft and ship-rigged, it had skids on the flat bottom so was obviously designed for beaching and would probably have provided close fire-support to troops on the shore. For this it mounted the potent armament of twelve 24pdrs (the broadside ports were staggered port and starboard to allow proper recoil, and they had pairs of gunports in the bow and stern that could be used as occasion demanded), but could also carry 120 troops. They were only planned in limited numbers, 18 being one early estimate.⁴⁷ A report on the captured *Ville de Lyons* suggested that they were very roughly finished, in the expectation of a short life; that the shallow hull was very leewardly and not 'at all calculated to sail close-hauled'; the rig was also of minimal area; and that the low exposed deck would have been very vulnerable to carronade and small-arms fire from the quarterdeck of a frigate.⁴⁸

Historians will probably never be able to determine precisely how many of each were actually built, and even the numbers required were changed frequently, but it is beyond dispute that the French Empire invested huge amounts of money and manpower in the Boulogne Flotilla. That it tied down British forces is undeniable, but whether a more conventional expression of seapower would have been more cost-effective for France is a question well worth asking.



PROFILE AND PLAN OF THE GUN BRIGG TAKEN BY SR RICHARD STRACHAN AS TAKEN OFF AFLOAT. PORTSMOUTH YARD, 2ND JULY 1795.

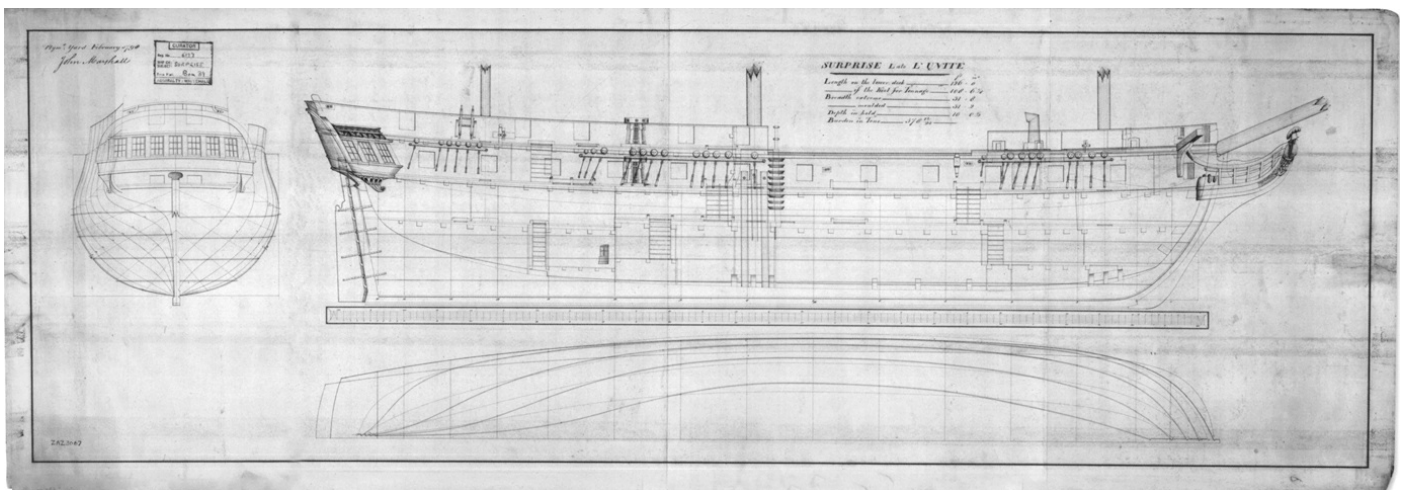
With a similar armament to *L'Eclair*, *Crache Feu* was of a type destined to become a standard design for the Boulogne Flotilla of invasion craft. Dubbed a *chaloûpe-cannonière*, they were approximately 80ft by 20ft and drew only 6ft of water. With a naval crew of 22, they were intended to carry 130 men, along with a 6in or 8in howitzer. Napoleon planned to build over 330 of them. The low freeboard and flat bottom suggest a far from seaworthy design for Channel conditions. (J0019)

French frigates were reputed to be fast, but every Royal Navy officer knew that in a chase to windward the deeper-hulled British ship, being more weatherly, would probably catch its quarry. Once at bay, despite usually being larger and always more heavily manned, the French frigate was at a disadvantage, because of the French failure to embrace the carronade. The early 1787 model brass *obusier* was a miserable weapon, and was never carried in large numbers, whereas by the mid-1790s a British 18pdr ship was likely to have twelve to sixteen 32pdrs along the upperworks. The 1804 model French iron carronade was a big improvement, but it took a long time to be introduced and even then the official allocation was only eight 24pdrs.⁴⁹

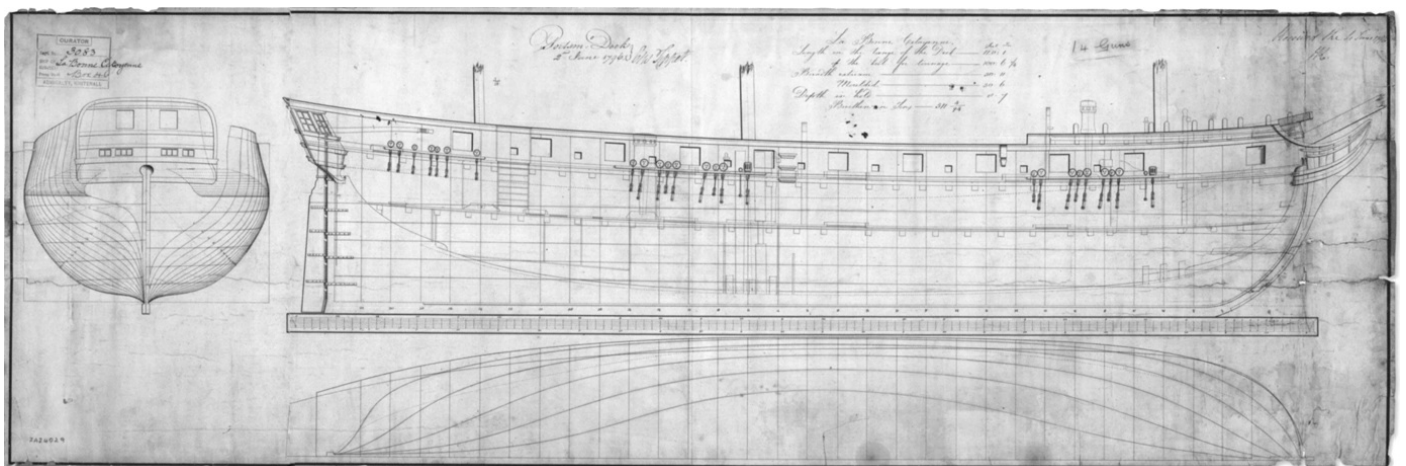
In keeping with the French navy's 'largest-in-each-class' philosophy, there was no real role for small frigates, so it is a mystery why they persisted into the 1790s with small 9pdr armed ships. Of about 500–580 tons, they were much like the old British 28-gun frigate, although they were formally 'quarterdecked corvettes'. *Surprise*, famous in the fiction of Patrick O'Brian as Jack Aubrey's favourite frigate, was in reality merely one of the largest of these. Even with the lightly barricaded upperworks favoured by the French, they were not very weatherly and this often placed them in the invidious position of being able neither to fight nor run away. This must have been a problem of which the French were very aware, being early converts to the flush-decked ship sloop. Furthermore, when they captured the old British 20-gun post ship *Daphne* in 1795, they removed the forecabin and quarterdeck; when she was recaptured in 1797 she was reckoned to sail substantially better.



FRANCE had built some very large 12pdr frigates in the 1770s and '80s, but these were outclassed when the British began building large numbers of 18pdr ships. Nevertheless, the French navy continued the construction of such ships in limited numbers to the end of the 1790s, although they were mostly in minor, non-naval ports. The 921-ton *Chiffonne*, launched at Basse-Indre near Nantes in 1799, was the last. Pen and ink sketch by John Shercliffe of the ship following her capture by the *Sybilie* off the Seychelles in August 1801. (A1580)



SURPRISE L'UNITÉ. PLYMOUTH YARD, FEBRUARY 1798. Although listed as a Fifth Rate 34 in British service, this small ship was little more than a quarterdecked corvette, with a main deck armament of 9pdrs, although she later carried 32pdr carronades. These quarterdecked corvettes were very unpopular in the Royal Navy, being regarded (in an ironic reversal of the usual criticism of British ships) as being over-gunned. *Surprise* has enjoyed a far more eventful career in fiction than in reality, the ship being the prototype for Jack Aubrey's favourite command in the bestselling novels of Patrick O'Brian. (J5948)



LA BONNE CITOYENNE. PORTSMOUTH DOCK, 2ND JUNE 1796.

This big flush-decked corvette was an influential design in the Royal Navy. The ship herself proved fast and weatherly, and was a highly effective frigate substitute for the Mediterranean Fleet, being much used for scouting duties. Her lines formed the basis of the *Hermes* and *Cyrus* classes of 1810–12, but in more general terms the ship convinced the British of the advantages of the flush-decked layout. The quarter galleries were false, and the ship was steered by tiller like a brig, but the low weather deck was protected by a long topgallant forecastle. Possibly the highlight of a very active career was her capture of the *Furieuse* in July 1809. The French frigate was only armed *en flute* at the time, but it was nevertheless a creditable achievement. (J4229)

French navy-built small craft were often reputed to sail fast, but most of the really extreme hull forms taken into the Royal Navy began life as privateers. Although France did not turn to a squadron-based *guerre de course* as she had done in the War of Spanish Succession, French

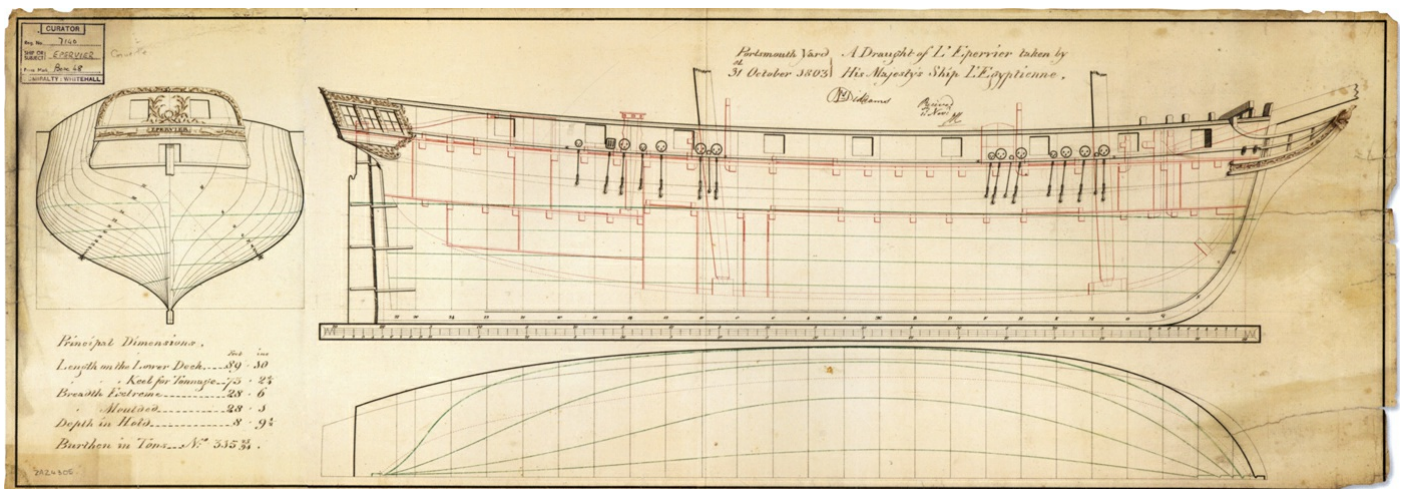
shipping interests, driven out of legitimate trade by the British blockade, turned to privateering on a substantial scale. Commerce-raiding for profit placed great emphasis on speed and weatherliness in ships, to run down their prey as quickly as possible and to escape from more powerful escorts whenever necessary. This meant very sharp hulls and low topsides, so a flush-deck arrangement was popular, even for very large corsairs like the 624-ton *Bordelais*, listed as a Sixth Rate of 24 guns in British service. Arming and fitting out private warships was a capital-intensive business and a profitable return was uncertain, so very large ships like this, a high-risk investment, were uncommon. At St Malo, for example, 41 of 126 privateers registered during the Napoleonic War were 100–200 tons, but the remainder must have been far smaller because the average size was only 76 tons by 1813. Schooners were used, but probably the most popular type of small cruiser, both as privateer and warship, was the brig. These were generally much the same size as their British equivalents, but with more emphasis on speed and less on seakeeping. The *Halcyon* of 297 tons, for example, ‘was a miserable-looking craft, but possessed great sailing qualities,’ and ‘was a good sea boat, but exceedingly wet in bad weather.’⁵⁰

FRENCH DESIGN RATIONALE

French ship design enjoyed a high reputation among British naval officers, but less so with senior commanders and dockyard personnel. Being large for their rating, French prizes – and especially line of battle ships – were highly desirable commands, valued both for their firepower and sailing qualities. However, by British standards they were lightly built and inadequately fastened, a weakness enhanced by relatively long hulls, and the disadvantages of this structural style were widely revealed by the rigours of constant year-round cruising in the Royal Navy. Hulls were strained and became leaky more frequently and under lower stress-loads than their British-built equivalents, leading to more time in dock or, at least, off station. No admiral was particularly pleased to lose the services of ships in this way.

In the dockyards it was well understood that French-built ships required more frequent and more costly maintenance. The largest were often judged beyond saving, like the *Commerce de Marseilles*, while the big frigate *Egyptienne* cost too much to retain in frontline service for long. Even a frigate like *Sybilie*, which was a particular favourite, had to be repaired in 1804–5 and virtually rebuilt in 1815–16. Many prizes, like the frigates *Clorinde* or *Didon*, needed major work before they could be put into service, or like *Thétis* were converted to troopships to save dockyard time, while others like *Vertu* and *Nereide* were never commissioned because the amount of work required could not be justified.

For the French navy this was less significant. For a century it had been the second largest and had tried to counter inferiority in numbers with individual superiority in ships. This was not just a matter of firepower, but a substantially larger ratio of displacement to broadside weight of metal produced advantages in sailing qualities. This was important to a navy which knew it had to act on the defensive in most scenarios, and had developed a strategic doctrine that placed the fulfilment of the ultimate mission beyond the requirement to beat the enemy in battle. Individual ships, squadrons and fleets felt hunted when at sea, and since the speed of any formation was determined by the slowest unit, a high average was necessary for all ships. Cruises tended to be short – and certainly nothing like the British experience of blockading ports for months on end – so the relative frailty of the hulls did not become a major design issue: in fact, the light construction, fine lines and long hulls add up to a coherent design philosophy that reflects traditional French naval strategy.



A DRAUGHT OF L'EPERVIER TAKEN BY HIS MAJESTY'S SHIP L'EGYPTIENNE. PORTSMOUTH YARD, 31ST OCTOBER 1803.

Although sharp-lined, French brig sloops were not radically different from those of other navies, although the majority were smaller than the British *Cruizer* class. Fixing the channels at deck level suggests the bulwarks were very light, and since she was armed in Royal Navy service with sixteen 32pdr carronades and two 6pdr chase guns, the upperworks would have needed some reconstruction. She did not enjoy a very long life and was broken up in 1811. (J4598)



IN the realm of fore-and-aft rigs, if the schooner is characteristically American and the cutter English, then the French speciality is the *chasse-mariée*, a lug-rigged craft capable of great speed that made ideal privateers or smuggling craft. They could carry a huge area of canvas, as shown by this French model of an 8-gun example, but they were tricky to handle and needed large crews to make the most of their qualities. They were never very popular with navies, and even in France most luggers in naval service were purchased or captured. (F2925-3)

SPAIN



The world's third naval power, like its Bourbon ally France, had seen both good times and bad in the previous century. The American War had been an opportunity to retake Menorca and Florida, but against these successes must be balanced the failure to capture Gibraltar and the defeats of Spanish squadrons during the British relief operations. Furthermore, the Franco-Spanish Grand Fleet, which had dominated the Channel in 1779, achieved virtually nothing, its cruise cut short by the joint deficiencies in seamanship, victualling and manning. The French thought the Spanish very inefficient, and since it took the returning French division five days to make the passage of the Goulet into Brest, that must have been inefficient indeed.

In material terms, the Spanish navy of 1793 was well prepared, with a large and well built fleet totalling about 250,000 tons. Spain was allied with Britain until 1796, but thereafter defeats and a lack of sufficient new construction began a process of irretrievable decline, to around 139,000 tons after Trafalgar. Very little naval shipbuilding went on during the 1790s, the last ship of the line being launched in 1798, and thereafter nothing of any size was produced. Although most of its major vessels were saved from the French during the uprisings of 1808, the occupation or investment of the main bases meant the end of the Spanish navy as an organised force for the rest of the war.

THE SPANISH FLEET

Probably the most impressive feature of the Spanish navy was its ships. Nelson famously claimed that although the Dons could certainly make ships, they could never make men, and it was probably the shortage of skilled seamen that most restricted the navy's development in the latter decades of the eighteenth century. What crews that could be found were often decimated by disease during service, and it is hard to explain why a navy with even more far-flung commitments than Britain's was so slow to grasp the advantages of anti-scorbutics on long-range cruises.⁵¹ State finances were also in a poor way, and the dockyards suffered from shortages of important raw materials and stores throughout the war years. Lack of sea-time and training could be blamed for the poor handling of Spanish fleets, but they were usually fought with courage and determination, the British generally rating the Spanish as tougher opposition than the French.

Spanish ship design had a good reputation from at least the 1740s, when the 70-gun *Princesa* had so impressed her British captors. However, it passed through a number of phases during the century, being influenced by first British and then French practice, before settling down to its own native synthesis. When head of ship construction, Jorge Juan had studied British methods and employed shipwrights from the British Isles, but since the ships of his period were very large even by French standards, it is likely that it was aspects like full hull lines and sturdy construction that most influenced him. The appointment between 1773 and 1782 of a French naval officer and *constructeur*, known in Spanish as Francisco Gautier, led to a brief flirtation with French design principles of lighter, finer-lined ships optimised for speed. They were generally poor sea-boats, but two were to become famous as the spans of 'Nelson's Patent Bridge for boarding First Rates': *San Nicolas* and *San Josef*.

The succeeding regimes of Romero y Landa (1782–94) and Retamosa (1794–1805) saw a compromise style emerge, combining strong construction with relatively fine lines, although by this time the size of Spanish battleships had been overtaken by their French equivalents and almost matched by those of Britain. With a large and very distant empire in Latin America and the Philippines, Spain's requirements from its ships were closer to Britain's: strength and capacity were more important than speed in ships expecting to make long cruises. To improve their sailing qualities and reduce the stresses on the hulls, Spanish warships were very lightly armed for their size. Thus even 80-gun ships had only 24pdrs on the lower deck, while frigates often carried a calibre one size down from that which an equivalent-sized ship would bear in any other navy.

TABLE 33 The Spanish Navy in March 1794

		Serviceable	Disarmed	Total
LINE OF BATTLE				
	80–112 guns	14	6	20
	68–74 guns	39	11	50
	54–64 guns	8	1	9
		61	18	79
FRIGATES				
	40–42 guns	5	1	6
	30–36 guns	39	8	47
		44	9	53
SMALLER				
Xebecs	14–36 guns	5	5	10
Corvettes	30 guns	2	0	2
Sloops	18–22 guns	6	1	7
Luggers	16 guns	1	0	1
Avisos	16 guns	2	0	2
Brigs	8–24 guns	21	0	21
Balandras	12–18 guns	2	0	2
Galleys	3 guns	0	7	7
		39	13	52
TOTAL WARSHIPS		144	40	184
There were also 43 serviceable and 8 disarmed auxiliaries				



SAN JOSEF OF 112 GUNS AS TAKEN OFF AT PLYMOUTH IN 1799.

Most Spanish First Rates were built in Havana, but *San Josef* was a product of Ferrol and completed in 1784. However, unlike their French counterparts, Spanish warships were very strongly constructed and stood up well to high-endurance cruising, so were suitable additions to the British fleet. The only prize First Rate to be fitted for sea service in the Royal Navy, *San Josef* was briefly Nelson's flagship before the Copenhagen campaign. Nelson had captured the ship at St Vincent, which he described to Lord Spencer as 'the finest ship in the world', and it was claimed that the ship was refitted in Nelson's honour. It is more likely that a rapid replacement First Rate was needed for the *Queen Charlotte*, lost in an accidental fire in 1800. This unusual coloured draught, which specifically notes that it depicts the ship as captured, is reputed to have once been the property of Lady Emma Hamilton. A significant amount of work was done during the refit, and there is also a later surviving draught that shows the changes made in both internal arrangements and external details in order to conform to British practice. (J1945)

The other notable feature of Spanish warships was the quality of their construction, which was reflected in the very long lives of the fifteen Spanish ships at Trafalgar: one was built in 1749, four in the 1760s, one in 1779, and four in the 1780s. Well seasoned timber was probably the key to this achievement, and in this regard Spain had a unique asset in the only major shipbuilding yard in any European colony, at Havana in Cuba. Access to tropical hardwoods like mahogany gave the products of this yard a longer average life than any European ship. Furthermore, Havana built far more Spanish ships of the line than any other yard (74 to Fermi's 50), amounting to over one-third of all construction in the eighteenth century, including most of the 112-gun ships. Again, taking only Trafalgar ships as examples, Havana built the three-deckers *Rayo*, *Santisima Trinidad*, *Principe de Asturias*, and the 74-gun *Bahama*.

A reliable Spanish source gives the fleet list for March 1794 as reproduced in Table 33.⁵² The most noticeable feature of this breakdown is the relatively high investment in the largest rating; and of these only one was a French-style 80 with a 3 6pdr main battery, the rest being three-deckers. The quest for firepower was a product of the navy's experience during the American Revolutionary War, when British three-deckers had endowed their outnumbered squadrons with a disproportionate strength. Much of this impact was psychological, but these ships came to be regarded as the Royal Navy's trump card, and the Spanish aimed to emulate their effect. As a result ten ships of a new 112-gun class were laid down between 1779 and 1794, the majority at Havana.

The process was also extended by conversion, the old two-decker 80 *Rayo* of 1749 being rebuilt as a form of three-decked 100-gun ship in 1796.⁵³ This was achieved by simply joining the forecastle and quarterdeck and adding a few more 8pdrs, but the main battery was also

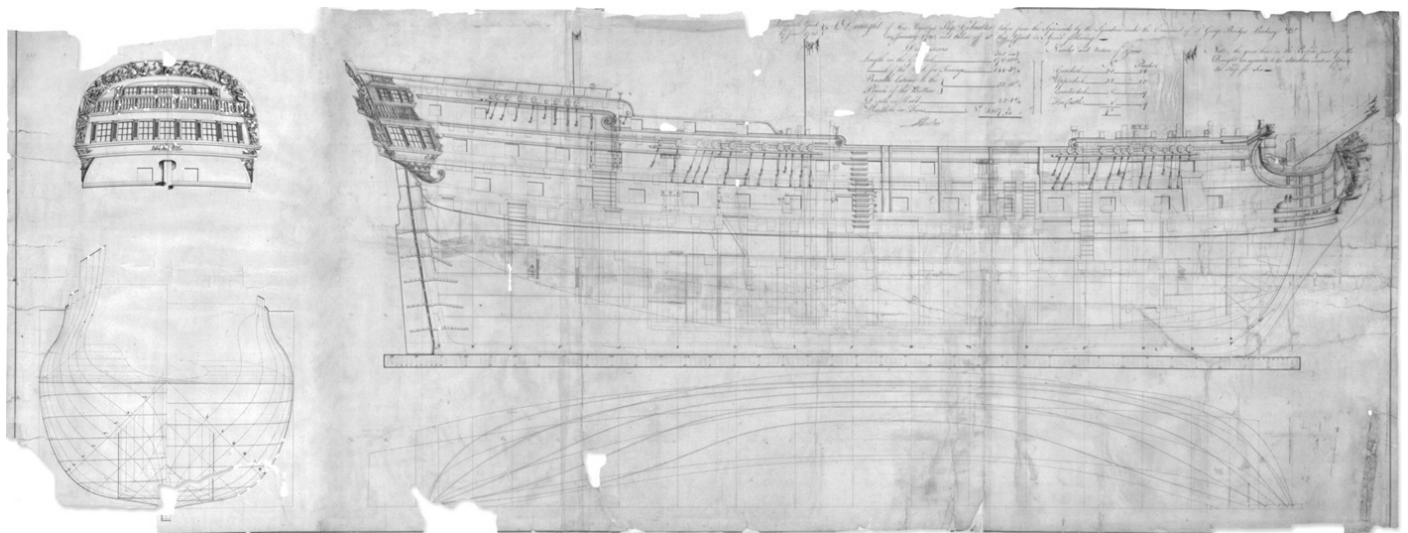
increased to 3 6pdrs. At the same time a similar process was applied to the old fleet flagship *Santísima Trinidad*, which went up from 120 guns to 136 by courtesy of this light spar deck. Instantly recognisable as the world's only 'four-decker', her dimensions were actually a little less than the 112-gun ships which succeeded her, and significantly smaller than the largest French 118-gun class. The conversion did nothing for her stability or her sailing qualities, which only serves to emphasise the new Spanish belief in firepower above all other considerations.

Two-deckers were more conventional, and although 1900-ton 74-gun ships had been built mid-century, they had not really grown in the interim, so by the 1790s their average size was not excessive. There were a few larger 80s, such as the *Gibraltar*, but unlike their French counterparts they did not have 3 6pdr main batteries until the 1780s. With the short-lived French influence of Gautier came relatively longer 74s (one of which was the *Bahama*) and the first of the new 3 6pdr-armed 80s, but the Spanish preferred stronger and more manoeuvrable 74s on the one hand, and far more powerful three-deckers on the other. The new *San Ildefonso* class became the model for later 74s, and of her sea trials Vice Admiral José de Mazarredo reported: 'she went to windward like the frigates; she steered and tacked like a boat; she has a spacious battery... stable in all positions, situations and circumstances.'⁵⁴

Like other major navies Spain had already abandoned smaller two-deckers by the 1790s, only eight 64s having been built since 1778, the last two at Havana in 1788–9. On the other hand, she was slow to adopt the heavy frigate, some of the American War prizes being well over 900 tons – big enough for 12pdrs in the French navy and 18pdrs in the British – but carrying only a main armament of twenty-six 8pdrs when captured. By the 1790s 34-gun frigates like the *Mahonesa* of a very similar design had been up-gunned to 12pdrs, but there were still only a handful of 18pdr ships of over 1000 tons when the *Imperieuse* was taken in 1804.

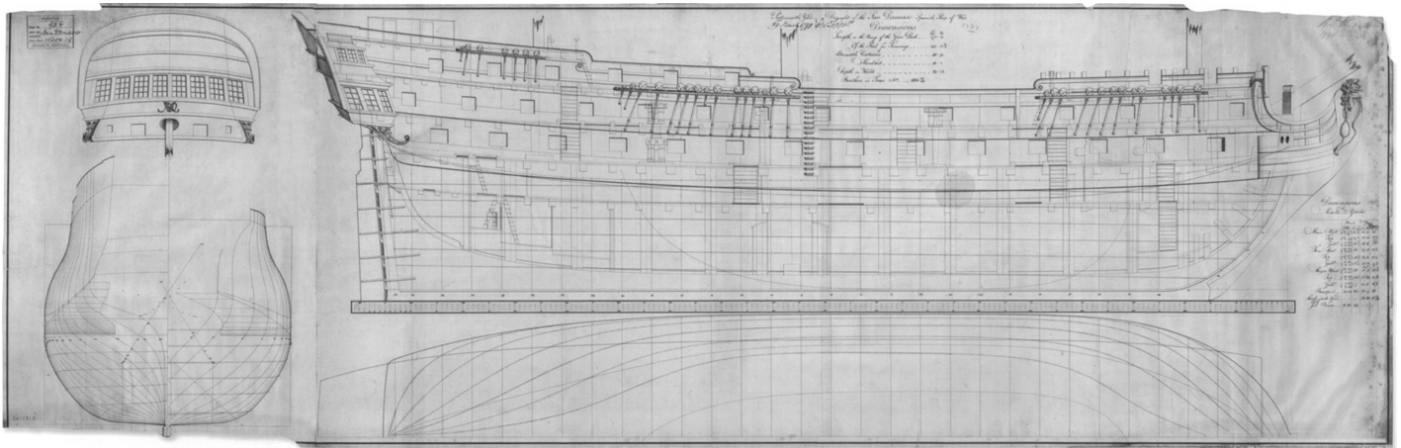
Spain's was a genuine two-ocean navy with, on the one hand, global blue-water commitments, while retaining, on the other, significant interests within the Mediterranean. Thus the fleet list, particularly among small craft, reflects this dichotomy. The few remaining galleys, and their more ship-like descendants the xebecs, were pure Mediterranean types, with a characteristic lateen rig, although the latter was now often to be found in a square-rigged form known as a xebec-frigate. Another local type was the *balandra*, a cutter-like single-masted vessel used for the defence of estuaries, harbours and bases.

Otherwise, Spanish minor warships were recognisably international types: below frigates there were sloops, the largest adopting a designation derived from the French 'corvette'; the *aviso* was a dispatch vessel, which might be schooner-rigged; but as in so many other navies, brigs comprised the largest class. They varied in size and form, and not all were of the usual low rakish style, judging by the *Port Mahon* and her sister *Vencejo*. These had full upperworks, including a long quarterdeck and forecastle, and resembled British ketch- and snow-rigged sloops of the first half of the eighteenth century. They also presented a more mercantile appearance and this potential for disguise may have been the reason for choosing *Vencejo* for so much clandestine work on the coast of France prior to her capture in 1804.



A DRAUGHT OF HIS MAJESTY'S SHIP *GIBRALTAR*, TAKEN FROM THE SPANIARDS BY THE SQUADRON UNDER THE COMMAND OF SR GEORGE BRIDGES RODNEY BT IN JANUARY 1780, AND TAKEN OFF AT THIS YARD IN APRIL FOLLOWING. PLYMOUTH YARD, 17TH JUNE 1780.

Although a very large ship, when captured, her armament was only Spanish 26pdrs on the lower deck (thirty) and 20pdrs above (thirty-two), with a further sixteen 9pdrs on the upperworks. In British service she carried nothing bigger than 24pdrs, so was a very weak ship for her size. Nor was she a very good sailer, and the two failings combined to make her a less than popular ship. She was very nearly lost in December 1796 when she drove from her moorings at Gibraltar in a gale, but both *Culloden* and *Courageux* (a far more highly regarded ship) went through the same ordeal, so it may have been no reflection on the qualities of the ship herself (J2625)

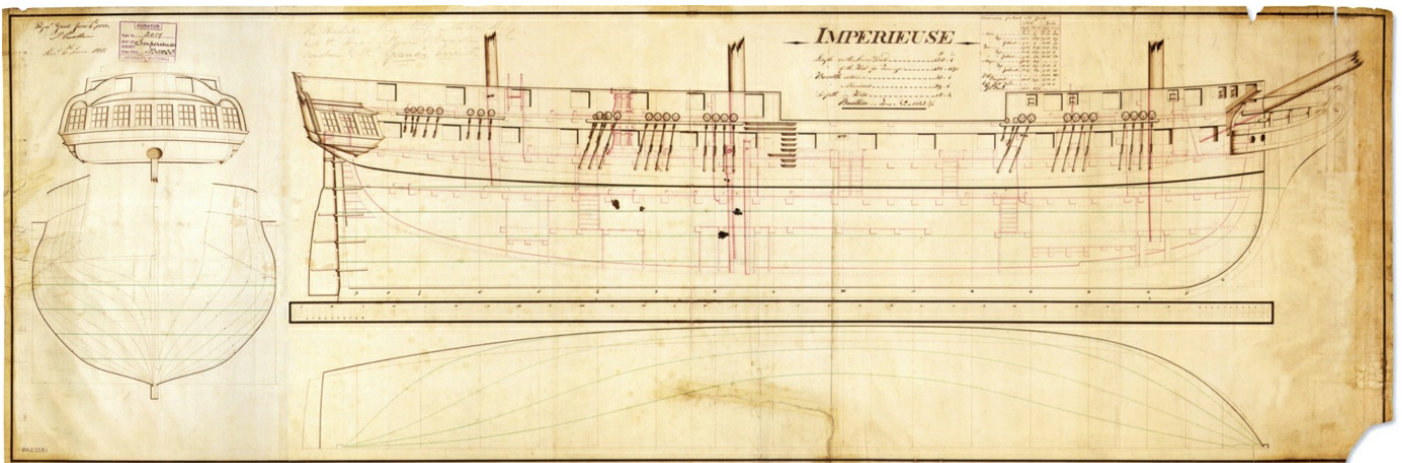


DRAUGHT OF THE *SAN DAMASO* SPANISH SHIP OF WAR. PORTSMOUTH YARD, 29 MARCH 1798.

A typical moderate-sized Spanish 74 built in 1775, the ship was taken at the capture of Trinidad in February 1797. She was never refitted for sea, spending her remaining days as a prison hulk at Portsmouth until sold in 1816. This draught shows full details of the ship as captured, including a table of mast and spar dimensions. (J3306)

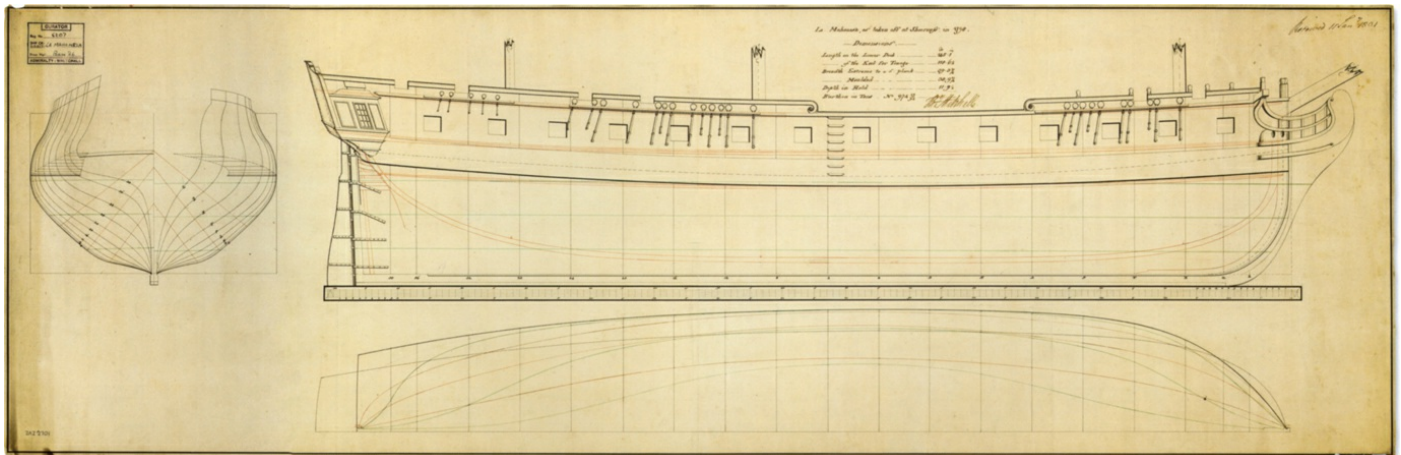


A PORTRAIT of the damaged Spanish 80-gun *San Nicolas*, after her capture at the battle of Cape St Vincent in February 1797. Although crude, this has every appearance of an eyewitness sketch (one of a pair with another St Vincent prize, the *San Isidro*), so is probably reliable. Built at Cartagena in 1769, the ship was old and, at 1942 tons, relatively small for her rate, so was not commissioned for sea service in the Royal Navy. However, the hull was structurally sound – the build-quality of Spanish ships was excellent – and served as a prison ship until 1814. (PW0603)



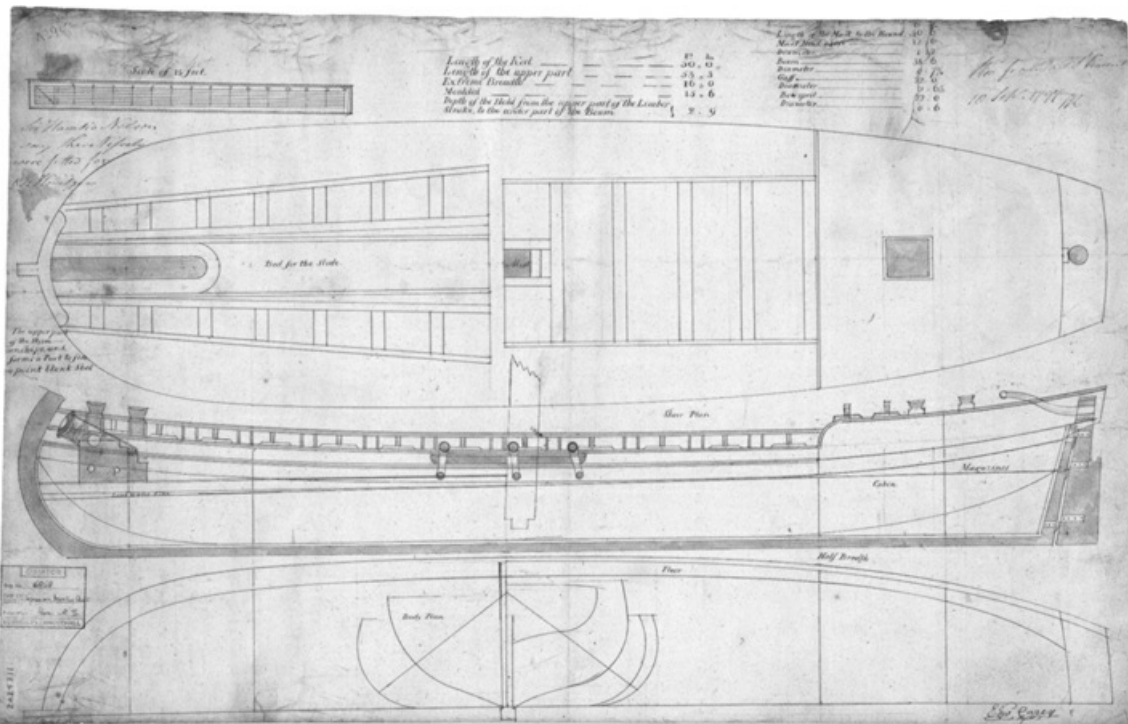
IMPERIEUSE. PLYMOUTH YARD, JUNE 6TH 1810.

One of the four 'treasure frigates' from the River Plate attacked in January 1804, *Medea* was Rear-Admiral Bustamente's flagship and the largest ship in his squadron. A relatively new ship constructed at Ferrol in 1797, she was briefly renamed *Iphigenia*, but is best known to history as *Imperieuse* under the energetic command of Captain Lord Cochrane. Being predominantly engaged in commando attacks on signal stations and the like, Cochrane never bothered to file a Sailing Quality report for his ship, so there is no evidence to gauge her performance, but she has a sharp, French-style midship section that suggests speed. (J5368)



LA MAHONESA, AS TAKEN OFF AT SHEERNESS IN 1798.

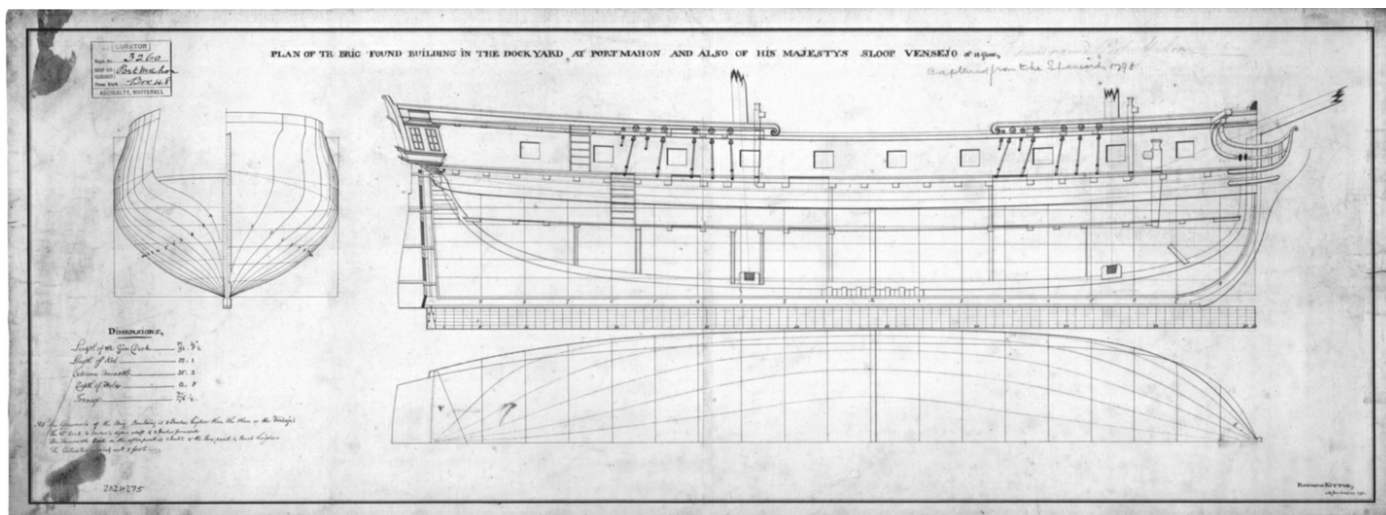
Spain built a number of large frigates in the 1780s, but despite being nearly 1000 tons they continued to carry only 12pdrs. *Mahonesa*, built in 1789, was one such, and was captured by a far smaller British frigate, *Terpsichore*, off Malaga at the end of 1796. It was a long and sanguinary action, during which the Spanish frigate was heavily damaged in the waist area, so although she was kept cruising for a short time in the Mediterranean by her captors, as soon as the ship reached a British dockyard she was judged unworthy of repair and was broken up in 1798. Interestingly, this draught is endorsed 'Received 11 Jan 1801', so it is possible that the Admiralty were considering the ship's form years after she was taken to pieces. No ship was built to her lines, however. (J5641)



THE Spanish made great use of rowing gunboats and similar mortar boats in Gibraltar Bay and around Cadiz, where they could be dangerous opponents for conventional sailing ships in calms. This fascinating draught of a 53 ft boat is not in the official style of one of the Dockyards and is annotated: 'Recd from Earl St Vincent 18 September 1797'. Details include the dimensions of a cutter spar-plan, and that 'The upper part of the stem unships and forms a Port to fire a point blank shot', but the most intriguing note is: 'Sir Horatio Nelson says these Vessels were fitted for 8" Howitzers'. This strongly suggests that the boat is one of those Nelson engaged in fierce hand-to-hand combat off Cadiz in July 1797, drawn by someone at Gibraltar or in St Vincent's fleet. (J0182)

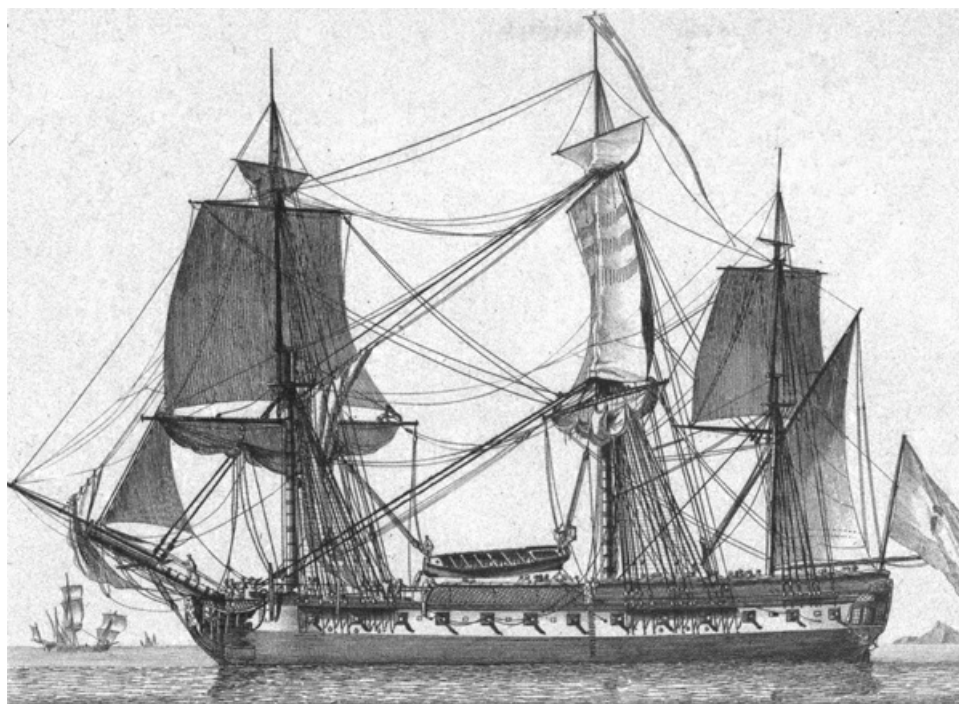
One highly important Spanish contribution to naval warfare is not mentioned in the above fleet list, and that is the oared gunboat. Large rowing craft, open or decked, with at least one heavy-calibre gun were potent weapons on the indented coastline and among the islands of the Mediterranean, where a sudden calm could render a conventional sailing ship unable to manoeuvre. Although they could make passages under sail, in action gunboats were rowed into position in the blind arcs of the warship's broadsides, from where they were capable of galling fire and occasionally even of forcing the surrender of small ships when they operated as a concerted flotilla. Historically, the concept may have originated in the Two Sicilies, but Bourbon family connections would have swiftly transferred ideas to Spain. Large numbers were certainly in service by the

1770s and the operations against Gibraltar saw the introduction of a mortar-armed version as well. In their natural habitat there was no answer except craft of the same kind, and the British operated their own force of rowing gunboats from Gibraltar.



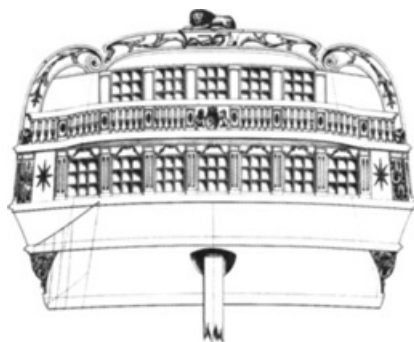
PLAN OF THE BRIG FOUND BUILDING IN THE DOCKYARD AT PORT MAHON AND ALSO HIS MAJESTY'S SLOOP VENSEJO OF 18 GUNS.

When the British took Menorca in 1798 – for the third time that century – they found this brig under construction in the dockyard that they themselves had founded during the first occupation of the island. The brig's sister *Vensejo* (or *Vencejo*) was captured the following year. Quite unlike the majority of brigs in the world's navies, which tended to be low and flush-decked, these vessels had a long quarterdeck and forecastle; with a full head and quarter galleries, they must have looked like a ship sloop with the mizzen missing, or assuming the gunports were disguised, a merchantman. Possibly because she looked so untypical a warship, *Vensejo* was much employed in 'cloak and dagger' operations off the coast of France under the command of John Wesley Wright, until the ship's capture by gunboats when becalmed in Quiberon Bay in 1804. (J4330)



A SPANISH 12pdr frigate as engraved by the great French marine artist J J Bugean (1764–1819). The ship belongs to the same generation as *La Mahonesa* shown earlier and, as with all of Bugean's work, is very convincing in its nautical details – note, for example, the waist netting and oar scuttles between the gunports. The ship is shown heaved-to, with main topsail backed, in order to hoist out her launch. (PU7196)

THE NETHERLANDS



After about 1714 the Netherlands possessed what its own historian described as ‘a second-rate navy’.⁵⁵ The country’s relative economic decline left it without the resources to match its Great Power legacy, but the navy, although no longer an arbiter of the European political balance, was left with significant commitments around the globe. Much of the colonial empire remained, while the Dutch merchant marine was still a major carrier of the world’s trade. To defend both in straitened times became a serious problem for Holland’s naval leaders.

For most of the century the circle was squared by an alliance with Great Britain that effectively absolved the United Provinces from building a battlefleet. The navy therefore concentrated on producing ships for colonial policing and trade protection, which translated into an emphasis on small two-deckers. Of 64 guns and less (the majority in the 50-gun range), these were cheap to build and man, but powerful enough to deal with those like the Barbary states who regularly threatened Dutch commerce, while providing a two-decker ‘presence’ on foreign stations.

The policy fell apart during the American War when the Netherlands found themselves in conflict with their erstwhile allies. In 1780 there were only three ships that could be considered fit for a modern line of battle, and the country’s elders decided on a mammoth construction programme aimed at building a genuine oceanic battlefleet for the first time in nearly a century. Given the meagre and moribund nature of the existing naval administration – still divided into the five traditional autonomous admiralties – the programme of about 75 battleships and 40 frigates was hopelessly optimistic. Large numbers of ships were launched, but post-war political upheavals did not help with regular finance, and the quality of timber employed and the standards of workmanship left much to be desired. As a result many of the ships that were completed had short active lives. The lack of experience was most clearly manifest in the smaller admiralties, the worst example being the two Friesland 74s built at Harlingen which proved too large to get out of the harbour.

It was with the residual ships of this programme that the Netherlands went to war in 1793. An official list, divided by admiralty, gives the following numbers of serviceable ships available at the end of 1792.⁵⁶ There was the nucleus of a battle squadron in seven 70/74-gun ships, armed with main battery 36pdrs, but at less than 1600 tons they were very small for their rate. The majority of the fleet (27 ships) still comprised the old 66-gun rate, like the *Prins Frederik*, most of which carried 24pdrs and did not exceed 1350 tons. The remainder of the ‘line of battle ships’ were made up of seven 56-gun ships, averaging about 1050 tons, which usually carried an 18pdr main battery.

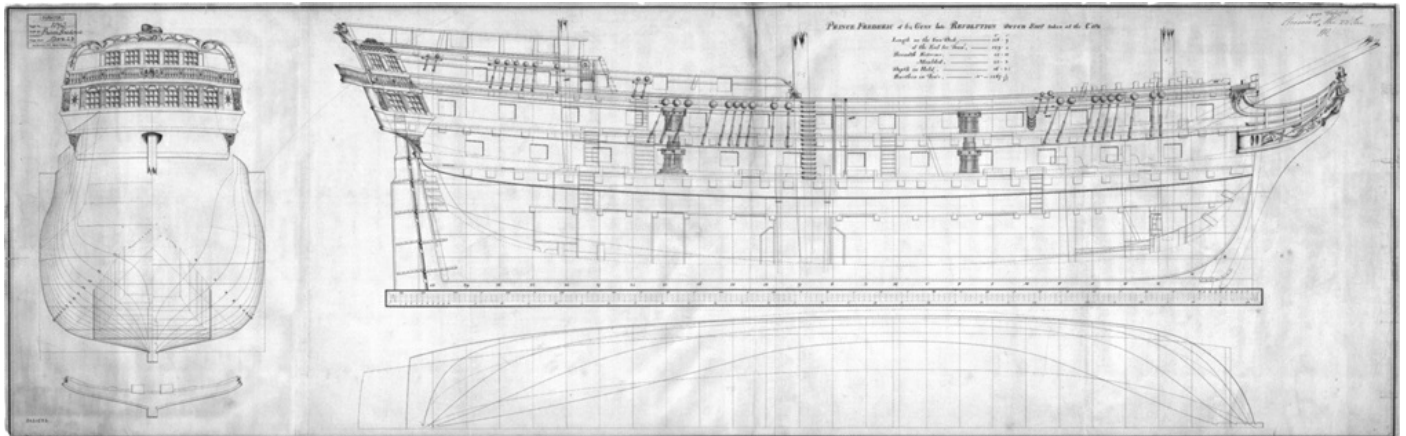
Although the Netherlands began the war on the side of the allies, France invaded the low countries in 1795, and in a famous incident French cavalry captured much of the Dutch fleet, frozen in its ports. A pro-French puppet state called the Batavian Republic was set up, and the country changed sides. Taking on the Royal Navy with this old-fashioned and inefficient force was simply disastrous, and although the Dutch, as always, proved the most obstinate opponents in battle, by the end of 1799 twenty-three of the above ships had been captured or destroyed, plus two more recent vessels. Not that the prizes were of much value to their captors: in general they were too small and poorly built for frontline service, so the more seaworthy were converted to troopships and store carriers; a few became floating batteries, guardships or stationary flagships, but many were simply hulked. They last saw widespread service during the invasion scare of 1803–5 when anything that could float was dragged into the defence of the British coasts. In 1803 Lord Keith’s dispositions for the Thames approaches included: *Texel*, *Vlieter*, *Leyden*, *Beschermer* and *Batavia* as floating batteries; *Gelykheid* was stationary flagship in Yarmouth Roads, with *Utrecht* serving the same function for Keith himself in the Downs. During the Trafalgar crisis, when the new First Lord instructed Keith to reinforce Cornwallis with five ships, the latter replied unequivocally ‘The *Utrecht* is not manned, nor fit to leave the Downs...’⁵⁷

Very little new construction was possible in the republican years, so that by 1800 there were only sixteen Dutch battleships available, although ten were now of larger types obviously designed under French influence. Dutch shipbuilding was obstinately conservative for much of the eighteenth century; this has been attributed to the outmoded system of decentralised admiralties or to the restrictive effects of small dimensions, but the navy also missed the acid test of real war. This is most obvious in Dutch cruiser design, which persevered with pre-frigate layouts long after the advantages of the frigate-form had been perceived by virtually every other serious navy. The old two-decker 44 was an economical convoy escort, but its sailing qualities (especially to windward) were poor in comparison with a frigate, yet there were still ships of this type being built in the 1780s. Even when the frigate-form was adopted there was an almost wilful refusal to grasp the benefits of a lower topside: the usual Dutch frigate had more headroom on the lower deck, which was also given more freeboard than conventional frigates, resulting in a height of side not much less than a small two-decker – and the same tendency to sag to leeward.

Along with about seven 40s (presumably two-deckers), the 1792 list includes fourteen 36s (about 700 tons; main armament of twenty-six 12pdrs) and fourteen 20/24s, like the *Daphne*, of 500–550 tons (twenty or twenty-two 9pdrs). Very similar to British post ships, with full quarterdeck and forecastle, the latter were especially vulnerable in any war with a big navy, since they could neither fight nor escape a proper frigate.

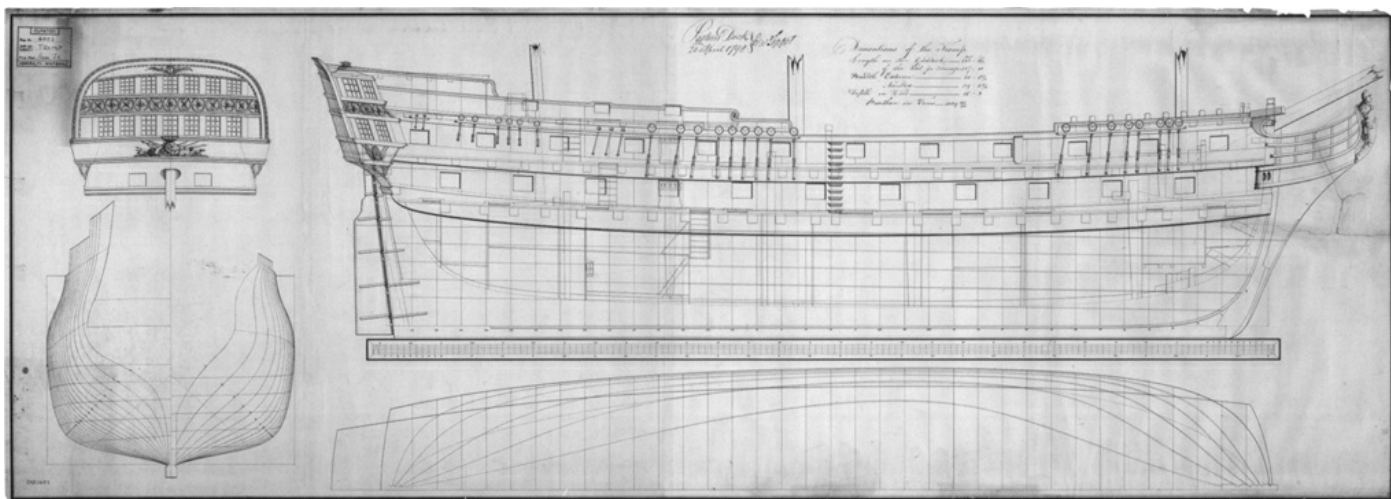


THE largest Dutch 74 captured in this period was the 1565-ton *Washington*, taken by Admiral Mitchell's fleet in the Texel in 1799. This dismantling model of the ship is built to the curious scale of 1/41, and is assumed to be Dutch-made. The Admiralty Collection also contains a Dutch plan of the ship, and it may be that both items were captured with the ship. Although renamed *Princess of Orange*, the ship was never commissioned in the Royal Navy but was hulked at Chatham until broken up in 1822. (F5800-006)



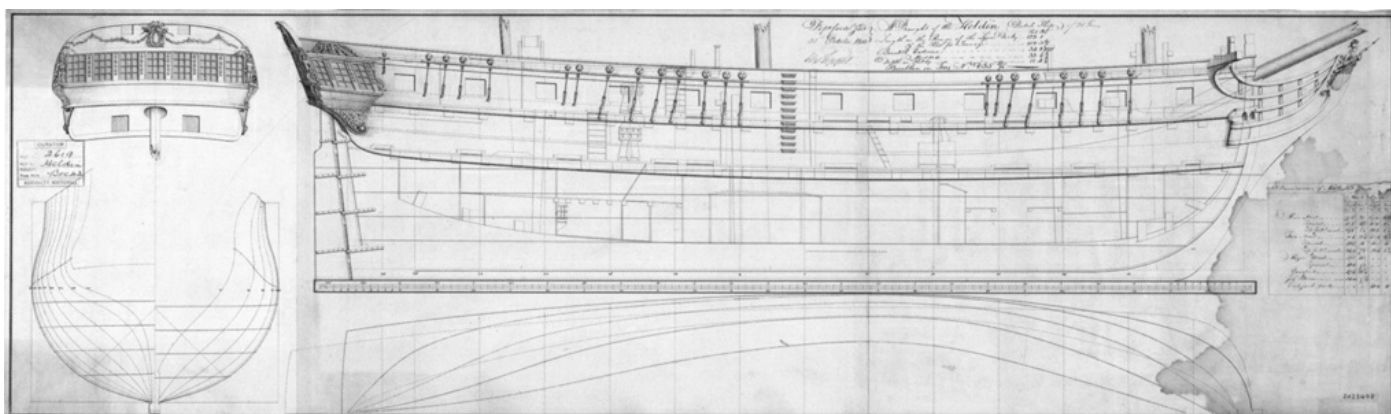
PRINCE FREDERIC OF 64 GUNS LATE REVOLUTION DUTCH SHIP TAKEN AT THE CAPE. RECEIVED FROM WOOLWICH THE 23 JANUARY 1798.

Built in 1777 for the Admiralty of the Maas, *Prins Frederik* was originally rated as a 60-gun ship; she has only twelve ports a side on the lower deck whereas thirteen was the norm for 64s. Despite the spelling on the draught, with the establishment of the Batavian Republic the ship was renamed *Revolutie* and reverted to an anglicised version of her original name on capture. Like many Dutch prizes, the ship saw no frontline service in the Royal Navy, being converted to a storeship in 1797 and then hulked as a convalescent ship at Plymouth in 1804 before being transferred to Berehaven in Ireland as a floating hospital. The hulk was sold in 1817. (J3405)



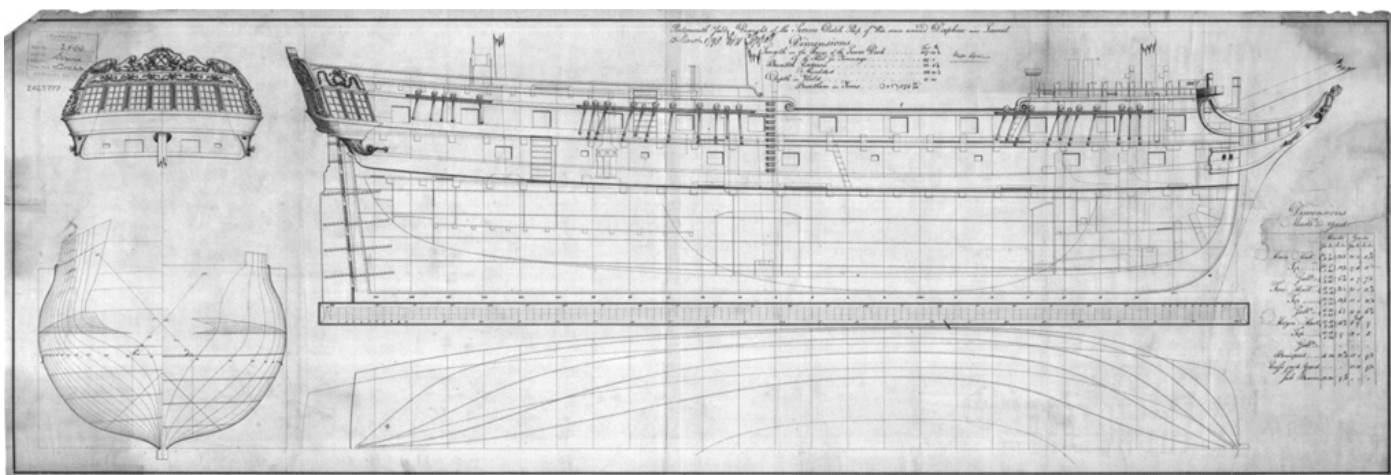
DIMENSIONS OF THE *TROMP*. PORTSMH DOCK 20TH APRIL 1798.

A 54-gun ship launched at Rotterdam in 1777, *Tromp* was captured at the Cape in 1796. She saw some service locally before coming home when she was converted to a troopship, this draught dating from the time of the refit. She was later fitted out as a prison ship and spent two years at Port Royal, Jamaica in this role before returning to Britain. From 1803 she was successively a guardship at Portsmouth (until 1806), a hospital ship at Falmouth, and from 1811 a receiving ship at Portsmouth before a spell in Ordinary until sold in 1815.



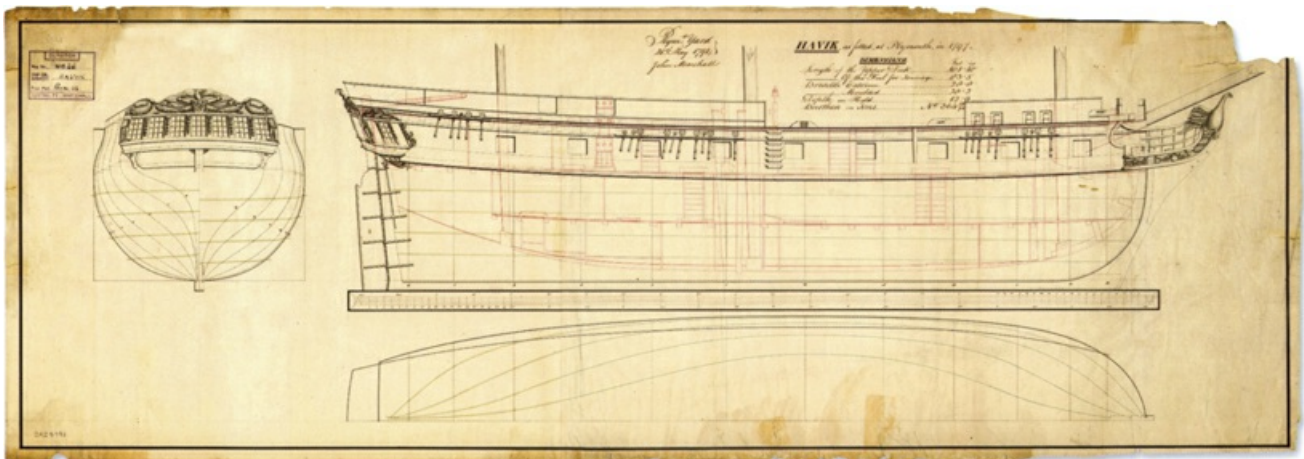
A DRAUGHT OF THE *HELDIN* (DUTCH SHIP) OF 28 GUNS. DEPTFORD YARD 31ST OCTOBER 1800.

A small but relatively new 12pdr frigate built at Amsterdam in 1796, this ship was taken with the rest of the Dutch fleet in the Texel during the Anglo-Russian invasion of 1799. The ship enjoyed a short cruising career but with the coming of the Peace of Amiens she was promptly sold in March 1802. Despite the 12pdr main battery, the ship's small size made her a Sixth Rate in the Royal Navy. (J6359)



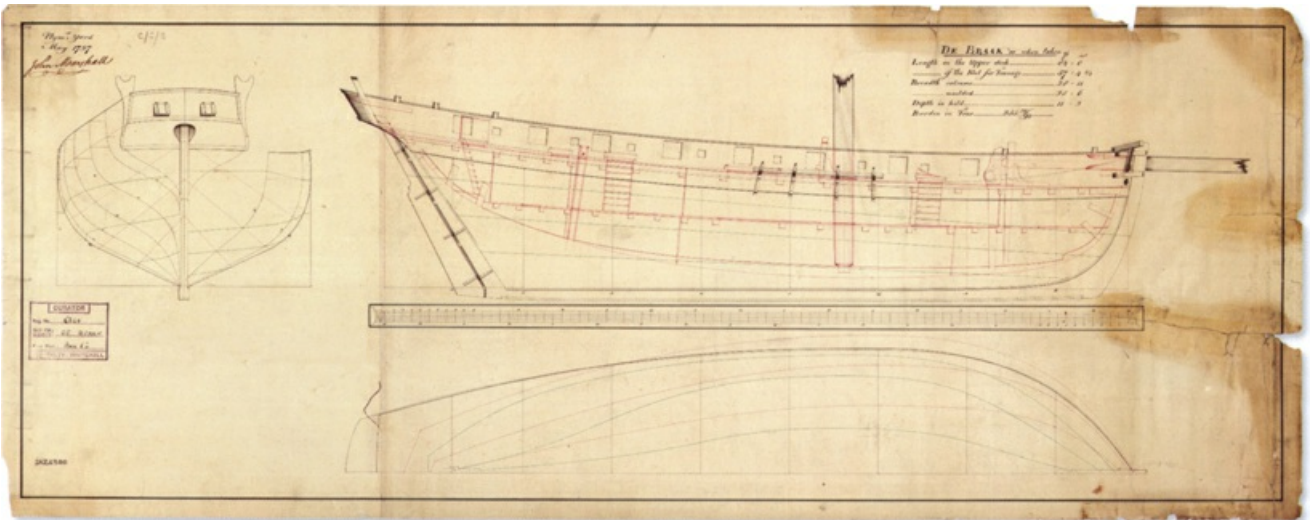
DRAUGHT OF THE *SIRENE* DUTCH SHIP OF WAR SINCE NAMED *DAPHNE* NOW *LAUREL*. PORTSMOUTH YARD, 15 MARCH 1798.

Built in 1786 for the Friesland Admiralty, this 24-gun 'corvette' is a prime example of the conservatism of Dutch ship design. The layout featured a full-height lower deck of the pattern used in British Sixth Rates of the 1730s and '40s, and although it is unlikely the ports were armed, the cables were still worked on this deck, which ran the risk of taking water through the hawse holes in bad weather or when riding at anchor. By effectively ignoring the frigate revolution, which had lowered the height of the topside, this corvette must have been more leewardly. Captured at the Cape in 1796, she was not commissioned after her return to Britain in 1798; she saw out the war as a convict hulk at Portsmouth, but was not sold out of the service until 1821. (J6979)



HAVIK AS FITTED AT PLYMOUTH IN 1797. PLYMTH YARD, 21ST MAY 1798.

This 16-gun quarterdecked ship sloop, built in 1784 at Amsterdam, was captured at the Cape in 1796. The ship was commissioned into the Royal Navy but spent most of her time on humdrum convoy duties before being wrecked in a gale off Jersey in November 1800. (J7147)



DE BRAAK AS WHEN TAKEN. PLYMTH YARD, MAY 1797.

During the American Revolutionary War the Dutch had developed a class of very large cutters, like this vessel built in 1781 for the Maas. As suggested by the diameter of the mast in the draught, the huge areas of canvas – especially the gaff mainsail – in this single-masted rig made them very difficult to handle, and the British introduction of the brig in the 1770s was effectively a response to this problem. Captured in 1795, the cutter was re-rigged as a brig. However she may still have been over-canvased for in May 1798 she capsized in a squall while sheltering in the Delaware river. (J2034)



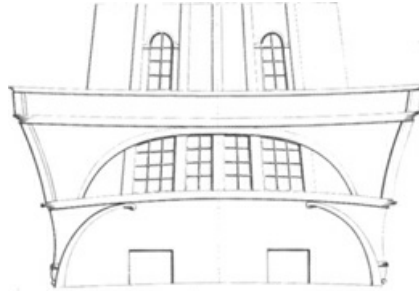
N anonymous watercolour of a small Dutch frigate shown, from two angles in a common convention of ship portraiture. She is flying the ensign of the Batavian Republic, dating it between 1796 and 1806. (PU0149)

The viability of 12pdr-armed frigates was also being eroded in a world where the 18pdr ship was increasingly seen as the norm. Nevertheless, the Dutch continued to build such ships, albeit rather larger, into the first decade of the nineteenth century, the 850-ton *Helder* being launched at Amsterdam in 1803. A few of the larger frigates were armed with 18pdrs, but the *Tholen*, taken in 1796, carried only twenty-four on the main deck instead of the twenty-six or -eight common in other navies. Perhaps under French influence, the Batavian Republic built at least one 24pdr frigate, the *Amphitrite* at Amsterdam in 1797; at 1181 tons she was a little small for that weight of metal, and after capture she was eventually reduced to 18pdrs. Like the battleships, in general Dutch frigates did not see much active service after capture.

The remainder of the fleet in 1792 comprised: two ship sloops, six brigs, eight cutters, five other small craft rated 'brigantun' (12–20 guns), one 10-gun schooner, five advice boats ('adviesjacht'), five 12-gun 'hoekers', three 6-gun gunboats, one 10-gun schooner and a bomb vessel. Some of the cutters were very large, at up to 20 guns, and one, *Braak* was converted into a brig in British service.

French domination of the low countries increased after Napoleon came to power and in 1806 he appointed his brother Louis King of Holland. The Dutch had already been co-opted into contributing invasion craft to the Boulogne Flotilla, and ship construction became increasingly French in style. Indeed, when Louis quarrelled with his brother and abdicated in 1810, France simply took over the remaining Dutch navy. When the British invaded Walcheren in 1809, among the ships they found building was *Fidèle*, a typically French-style 40-gun frigate, which was brought to Britain for fitting out.

DENMARK-NORWAY



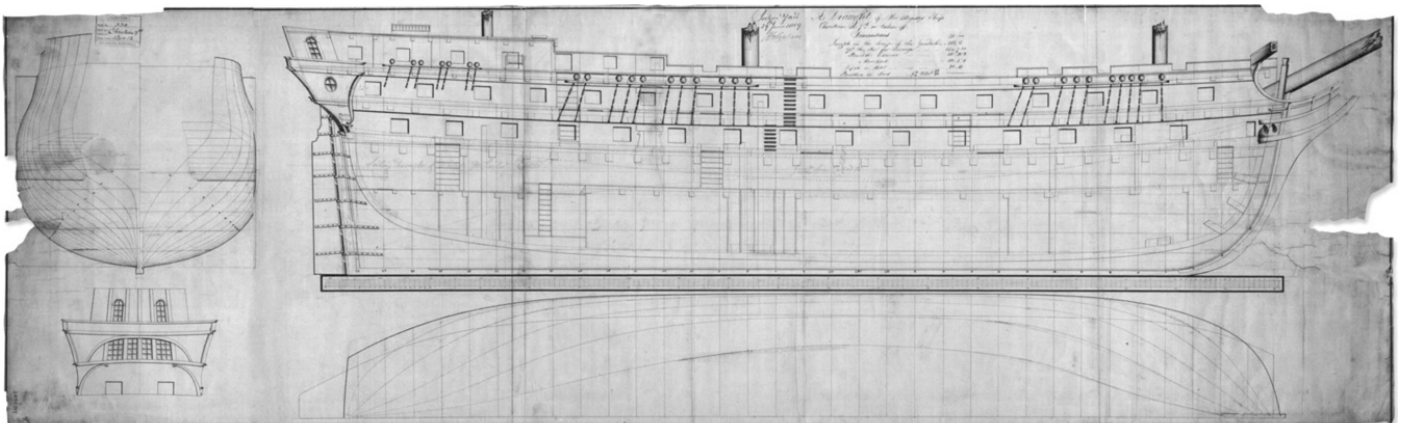
The naval forces of the Kingdom of Denmark (which included Norway until 1814) were primarily orientated towards the country's traditional Baltic rival, Sweden. However, unlike Sweden, which had a considerable investment in a specialist army co-operation Archipelago Flotilla, Denmark retained a conventional high-seas battlefleet, although its ships were optimised for the Baltic shallows – actually, the formal maximum of 22ft draught was set by the Drogden Channel in the south of the Sound, a dimension as significant as the width of Panama Canal locks to twentieth-century American warships. Although Denmark had been a Great Power in the seventeenth century, by 1790 the navy, of about 86,000 tons, was probably the sixth largest behind the Netherlands, Russia and the three real maritime powers.⁵⁸

Although relatively small, the navy was generally efficient and technically forward-looking. While larger navies kept track of their rivals' activities in various rather occasional and unsystematic ways, the Danes made a virtue of their second-rank status by methodically collecting technical intelligence on developments in the major navies. Since 1748 an essential part of the apprenticeship of every technical officer who was training to be a ship designer was a visit to a foreign country – usually Britain or France – on what amounted to an espionage mission. The information so garnered was written up and the submitted report became part of the officer's graduation assessment. This not only kept the Danes abreast of new technology, but made the whole navy more open to innovation and new ideas.

In 1757 a school of naval construction was established at Copenhagen's Holmen yard, but its curriculum included the practical aspects of shipwrightry as well as theory. There was also a standing construction committee to evaluate and criticise designs, which provided an element of stability and continuity of experience. Relatively small numbers of new ships were constructed, so judging by the amount of correspondence and the number of draughts produced for each ship, every design was accorded rather more attention than may have been the case in busier shipbuilding departments.

When the Danish navy went to war it was not against the expected enemy. The Baltic states, led by Russia, became increasingly irritated by British interference with their trade and attempted to revive the Armed Neutrality of the North that had been so successful during the American War of Independence. This threatened the supply of both corn and, more significantly, naval stores from the region, and Britain acted with speed and vigour, sending a large fleet to browbeat the Danes into withdrawing from the confederation. Danish refusal to be coerced led to Nelson's well-known attack on the Copenhagen defences in April 1801, when most of the damage was sustained by old ships functioning as floating batteries. The British brought away only one serviceable two-decker, a relatively old 64-gun ship, so the quality of Danish ship design was not at that time apparent.

However, fearing that Napoleon intended to take over the Danish fleet, in 1807 the British came back in overwhelming force, captured Copenhagen and sequestered almost the whole of the fleet, lying dismantled in the harbour. So well organised was the dockyard, where every ship's guns, stores and rigging were laid out in large warehouses, that it took only nine days for the British to fit out fourteen sail of the line. Old ships and those on the stocks were destroyed, but most of the smaller craft were also prepared for sea, and all the usable timber and sea stores were carried off as well. One ship of the line and most of the gunboats were lost on the stormy voyage to Britain, but the final haul was: two 80-gun ships, twelve 74s, one 64, two 38-gun and six 36-gun frigates, one smaller frigate, two 20-gun ships, two ship sloops, seven brigs, and a few smaller vessels.



DRAUGHT OF HIS MAJESTY'S SHIP CHRISTIAN THE 7TH AS TAKEN OFF PORTSMOUTH YARD, 29TH JUNE 1809.

A The Danish fleet flagship was one of the most influential vessels of the latter end of the war. Although some French 80s were larger and more heavily armed, it was the sailing qualities of this ship which captured the imagination of British officers. She sailed and worked well, was an easy sea-boat, and stood up to the rigours of blockade duty without straining. As a result an 80 was built to her lines, which were also scaled down for the 50-gun *Jupiter* and the *Black Prince* class of 74s. The most radical feature, the Hohlenberg stern, was not adopted. This curious design, seen clearly on the draught (bottom left), involved a narrow transom, with the quarter galleries at acute angles to the curved-in after hull at the level of the main batteries and entirely cut away above. This was intended to reduce the dangers of raking, but primarily to contrive some oblique fire on the quarters against gunboats and the like – since the Danes were adept at the use of such craft against sailing warships unable to manoeuvre in calms, they could see the need for a remedy. (J2535)

This was virtually a complete navy and formed a unique three-dimensional technical archive. The British commander was Admiral James Gambier, whose deep interest in naval architecture was manifested in his own experimental designs (most notably, his frigate *Triton*). He had also served on the Admiralty Board and under his influence more than usual attention was paid to the Danish ships, almost all of which were surveyed and their lines taken off. All the later eighteenth-century Danish chief constructors like Henrik Gerner (1772–1787) and Ernst Wilhelm Stibolt (1788–1796) were highly competent; but the latest, Frantz Christopher Henrik Hohlenberg (1796–1803), was also a great innovator, and it was his ships on which the British focused. They were, of course, the newest and largest in each class, but it is significant that, apart from the 74-gun *Dannemark* (herself relatively new), it was only Hohlenberg's ships that saw extended service. The political fiction was that the Danish fleet was being held in trust, to be returned on the signature of a universal peace, and this prevented their being treated as real prizes (plans to rename them were shelved, for example); but in practice, the temptation to try out the more novel ships was irresistible.

Hohlenberg's career was short, the small amount of new building after 1801 prompting his retirement in 1803, so his designs amounted in all to only 4 ships of the line, 13 frigates and corvettes, 3 brigs, 4 schooners, and some small craft. However, his penchant for radical solutions can be seen in his abortive plan of 1802 to standardise the Danish navy, with only one design for each main type: he even went as far as proposing that the frigate should be the same as the line of battle ship, but with the upper deck removed.

In the few ships that were built the hull forms were highly original, with straight rising floors and a flat-sided area above the waterline before a much reduced tumblehome, but the most noticeably different feature was the stern. The traditional flat stern had long been recognised as the weakest point in a wooden warship's hull – not only was it lightly timbered (and largely glass), but allowed very little astern fire, and even blocked angled fire more than a few degrees abaft the beam. Arguing that the retention of the conventional stern was pure conservatism, Hohlenberg introduced a far narrower transom, and cut away the quarter galleries, to allow more oblique fire from after ports of the main deck batteries. It was first tried in the frigate *Najaden* in 1796, and extended to ships of the line with the 74-gun *Norge* of 1799.

Objections to the design were likely to stem from senior officers, since it greatly truncated their accommodation, but this could not have been a major consideration in the Danish navy since Hohlenberg was allowed to extend his principle to a new fleet flagship. Designed to replace the last small three-decker, which had traditionally carried the C-in-C's flag, the new ship was a large two-decker rated 96 guns, and again following Danish tradition was named after the reigning monarch. The *Christian VII* was regarded as Hohlenberg's masterpiece, a reputation if anything enhanced by her service in the Royal Navy, where she was regarded as fast, weatherly and responsive. Captain Bayntun of the *Milford* (designed by the French emigré Barrallier), comparing his own ship very unfavourably, thought the Danish two-decker 'everything that could be desired' of an 80-gun ship, and believed she was stable enough to carry 24pdrs on the upper deck.⁵⁹ Under pressure from Gambier, an 80-gun ship was built to her draught, and after further comparison with the highly controversial designs of Barrallier, slightly reduced versions of the lines were chosen for the new *Black Prince* class 74s – the only non-French hull form ever adopted for a battleship in this way.



TWO of the Danish prizes taken at Copenhagen in 1807 lying in Portsmouth harbour. John Livesay, the Drawing Master at the Naval Academy, was in the habit of sketching ships from life – he did a series of close-ups of battle-damaged ships after Trafalgar, for example – but he often passed them to Nicholas Pocock, who may be responsible for this watercolour. It shows the *Justicia* launched in 1777, one of the standard class of Danish 74s designed by Henrik Gerner. However, on her starboard side is the unmistakable stern of a Hohlenberg-designed frigate, possibly the *Perlen*. (px9735)

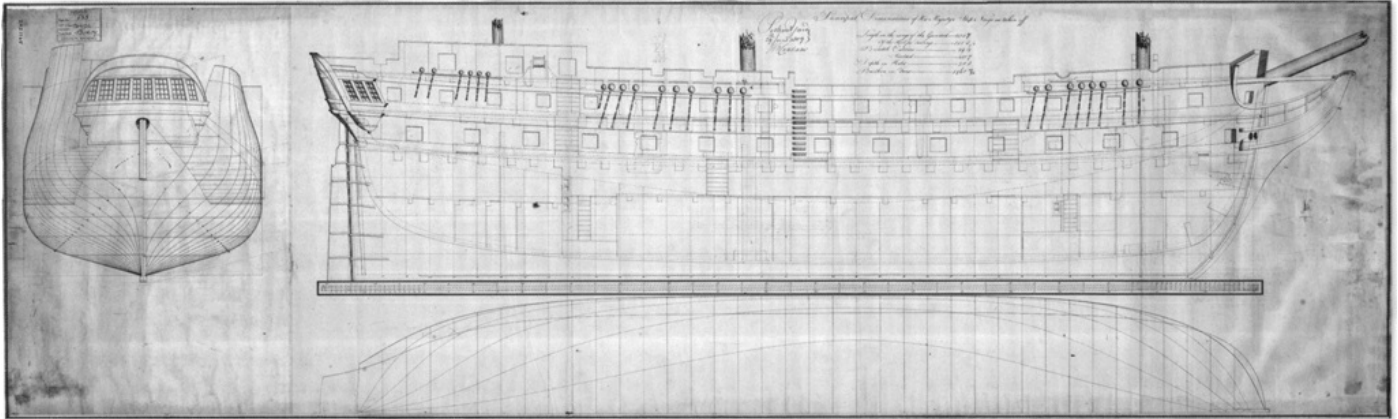
However, the stern itself did not find favour. It has been said that it inspired Seppings to produce his circular stern (for which there is no objective evidence), but even if it provoked thought, the end result was very different. Although Hohlenberg's stern was narrow, thus reducing the target for a raking attack, it was still relatively lightly timbered and offered little direct stern fire. Seppings, on the other hand, devised a stern that was as strong as the broadsides, and allowed all-round fire on each deck.

The more modern Danish frigates saw some British service, where they were found less impressive. Although fast, their shallow French-proportioned hulls were thought leewardly and, with the exception of Hohlenberg's *Perlen*, they did not carry their batteries high enough for British liking. Curiously, they either trimmed on an even keel, or some by the head, and would not handle properly if trimmed conventionally by the stern. However, their greatest shortcoming in British service was their lack of capacity, which significantly shortened their endurance – not a major consideration in the Baltic service they were designed for.⁶⁰

With a minimal oceanic commitment, Denmark did not need many of the largest type of frigate, but kept up cruiser numbers with small 12pdr-armed frigates and a class of flush-decked corvettes like the *Fylla* of 20 guns. One of these, best known to history by her anglicised name *Little Belt*, was involved in a bloody clash with the American 44-gun *President* in May 1811, one of a number of incidents on the road to the War of 1812.

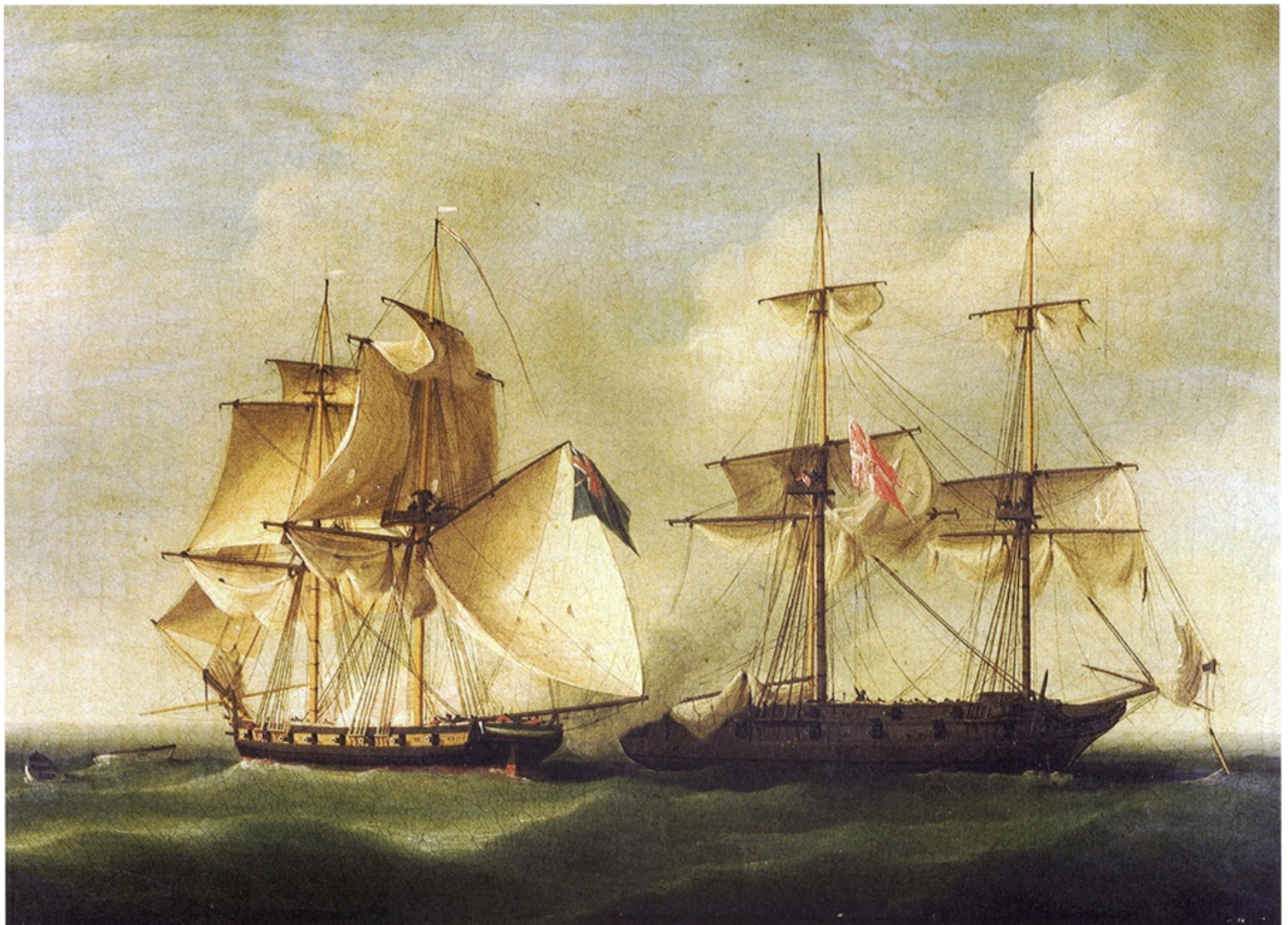
After 1807 Denmark had no fleet, but carried on an intense, if small scale, war against British Baltic trade. On the Atlantic coasts the main protagonists were brigs like the *Nid Elven*, but the vessels which gave the British most trouble in the narrow waters and skerries around Denmark were the rowing/sailing gunboats like the *Midfart*. In general terms, they either carried one large gun fore and aft or two side by side

in the bows; in each case they were mounted on slide carriages.

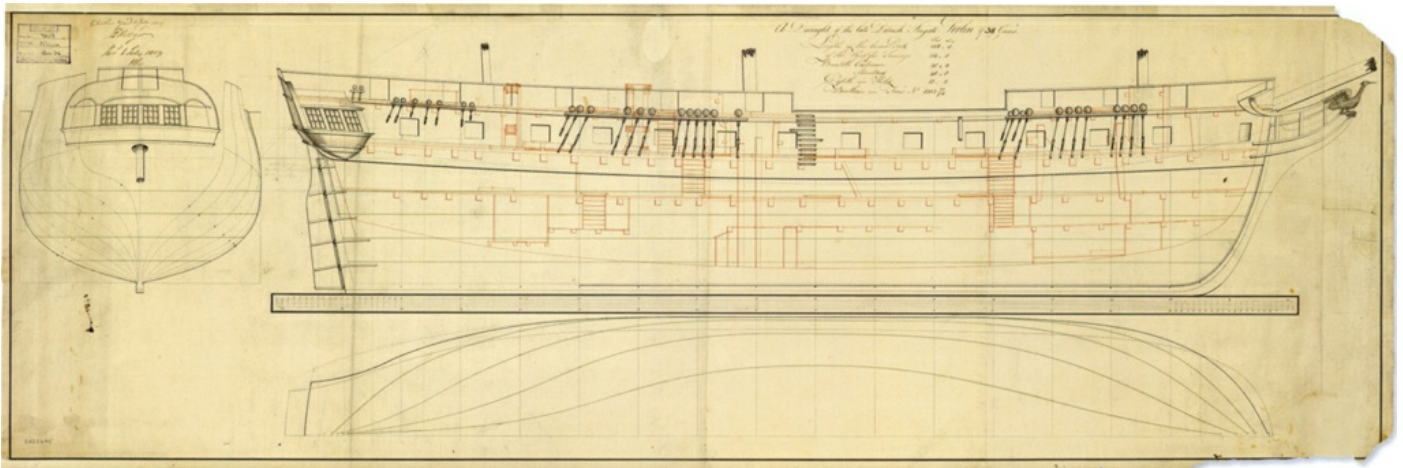


P RINCIPAL DIMENSIONS OF HIS MAJESTY'S SHIP *NORGE* AS TAKEN OFF PORTSMOUTH YARD, 29TH JUNE 1809.

The largest of the Danish 74s taken at Copenhagen in 1807 and one of only three to be commissioned into the Royal Navy, by any standards *Norge* was big for her rate. She had an odd pattern of gunports with two pairs more on the upper deck than the lower. The ship introduced the Hohlenberg stern to the line of battle, but in a less extreme form than it reached with the later *Christian VII*: the transom was narrowed, with only a single level of galleries, but with a more conventional design of fenestration. The upper section was removed altogether leaving the aftermost quarterdeck guns to fire over the galleries on the quarters. The configuration shown here is substantially the same as occurs in the Danish design draught, so does not represent any significant British modification. (J2661)

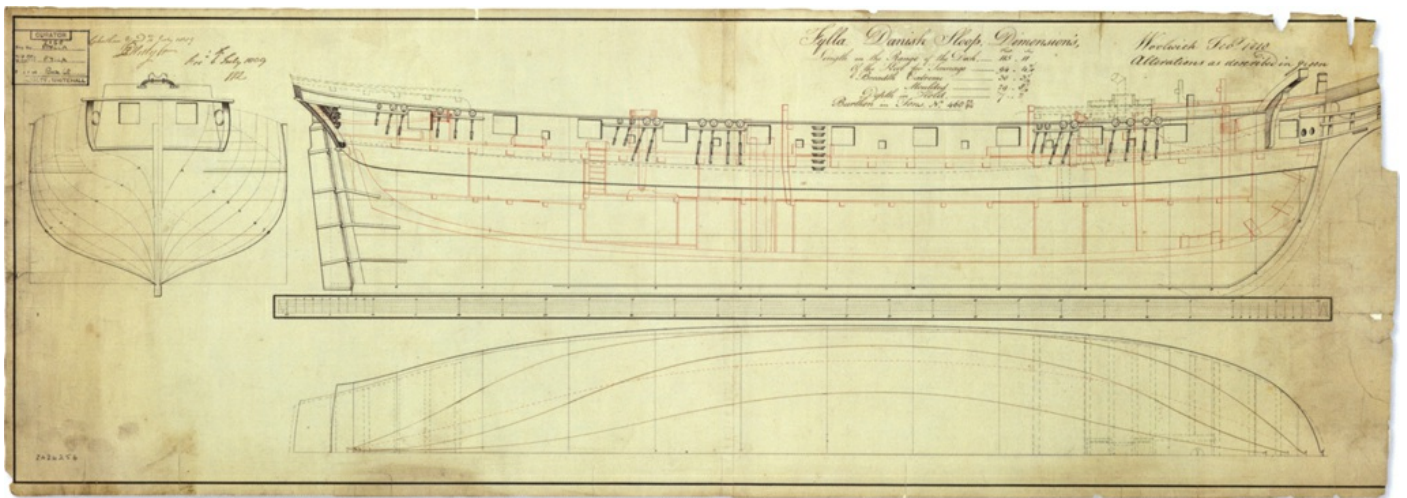


T HE Danish navy was technically adventurous in its ship design but nothing was more *outré* than the brig *Admiral Jawl* which carried her guns on two decks – almost certainly a unique configuration in a ship of this size. She carried a total of 28 guns: twelve 18pdr carronades on one deck and sixteen long 6pdrs on the other. Despite her apparent firepower, she quickly succumbed to the very conventional *Cruizer* class brig *Sappho* on 2 March 1808. The British sloop's 32pdr carronades actually gave her a considerable advantage in weight of broadside, at 524 pounds to the Danish brig's 312 pounds. (BHC0583)



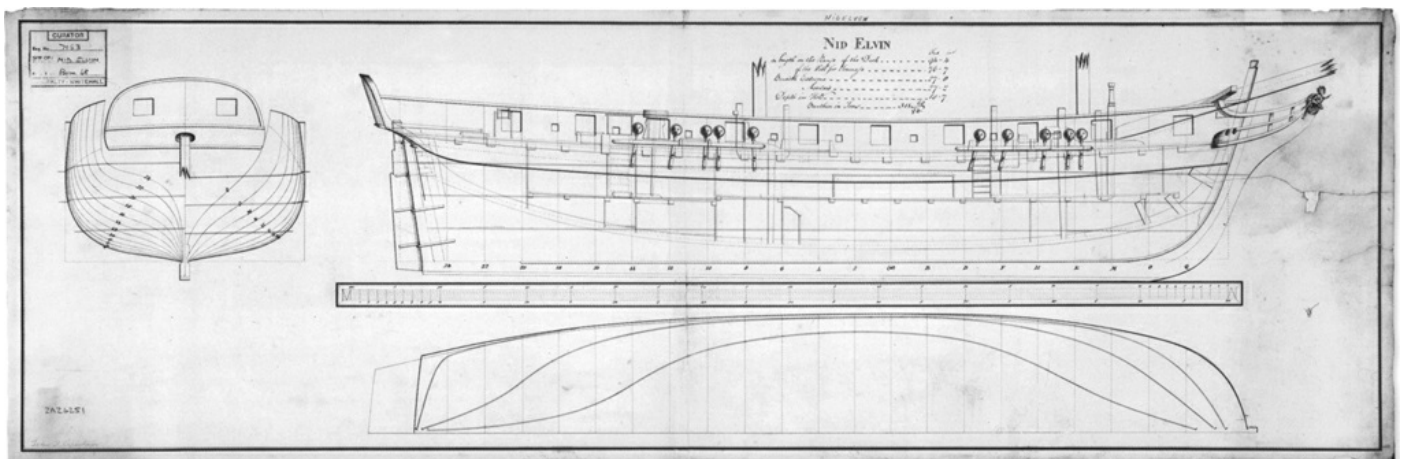
A DRAUGHT OF THE LATE DANISH FRIGATE *PERLIN* OF 38 GUNS. CHATHAM YARD, 4 JULY 1809.

Often spelt *Perlen*, this ship was the largest of the Danish frigates and was designed for a 24pdr main battery; although rated as a 38 in British service, with twenty-eight 18pdrs on the lower deck, this must have involved permanently arming the chase ports forward. She was originally given a smaller version of *Christian VII*'s *Hohlenberg* stern, but it was replaced by a more conventional set of quarter galleries, and the ship was otherwise fitted out to match British practice. For such a powerful frigate, her cruising career was short, being hulked in 1813. (J5658)



F'YLLA DANISH SLOOP. CHATHAM YARD, 4 JULY 1809.

This 20-gun flush-decked ship sloop was designed by Hohlenberg and launched in 1802. She was found too low and wet in British service and in February 1810 the topgallant forecastle was extended aft to almost the third broadside gunport, and a platform built over the steering gear aft. She was a sister of the *Little Belt*, so famously mistaken for a frigate in 1811 by USS *President*. (J4300)



NID ELVEN [NO SIGNATURE OR DATE, BUT PROBABLY PRODUCED AT WOOLWICH YARD IN 1807]

Six brigs built to this design by Ernst Stibolt were captured at Copenhagen, this one having been launched there in December 1792. After a very short commission from March 1808 to December 1809, the brig was laid up at Sheerness and eventually sold in 1814. None of the ex-Danish brigs saw long service in the Royal Navy. (J4299)

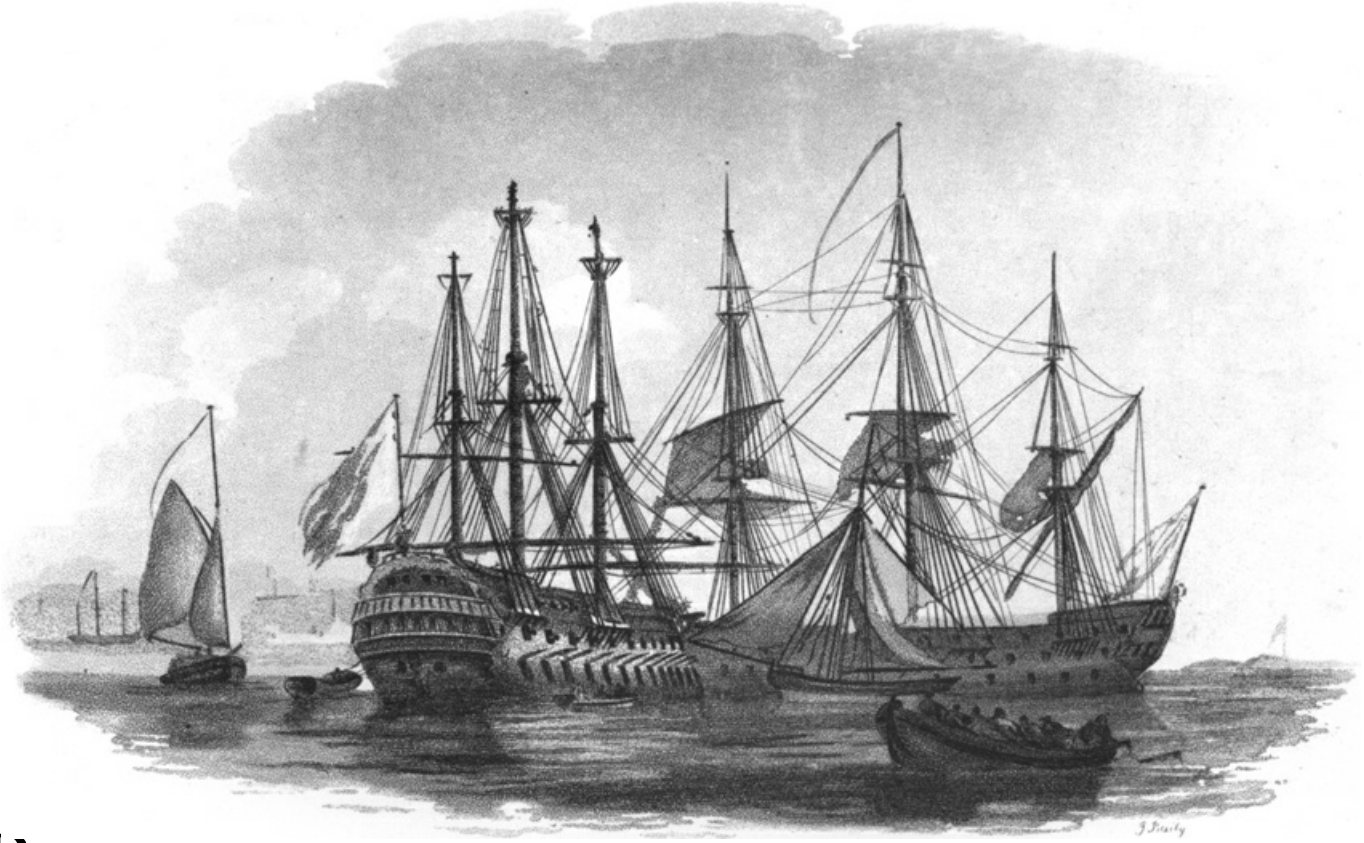
OTHER EUROPEAN NAVIES



RUSSIA

The Russian navy was no better understood in the West during the eighteenth century than its Soviet successor was in the twentieth. Distance, the Cyrillic alphabet, and a Tsarist penchant for secrecy conspired to keep information to a minimum, yet the Russian navy in 1790 was a major force: at about 142,000 tons the Baltic fleet alone was larger than all Dutch naval forces combined, while a further 40,000 tons in the Black Sea was approximately the same size as the Swedish navy. Depending on the precise date chosen, together they constituted the world's third or fourth largest navy. In 1798 the Baltic fleet's official establishment comprised nine 100-gun ships, twenty-seven 74s, nine 66s, nine 44s, one 40 and nine 32s; for the Black Sea in 1797 it was three 100s, nine 74s, three 66s, six 50s and four 36s. These figures, however, were aspirations – the first 100-gun ships for Black Sea were not launched until 1801–2 – but they do indicate the magnitude of the Russian navy.

It was also a successful force, having won significant victories over Sweden in 1788–90 and the Ottoman Empire in 1787–92. Although Peter the Great is regarded as the father of Russian seapower, it was Catherine II (1762–96) who was responsible for the development of a European-standard battlefleet that was employed with so much strategic impact. This period also saw much technical improvement, with considerable effort expended keeping up with British, and to a lesser extent French, naval technology. A decline in numbers set in during the reign of Alexander I after 1801 and thereafter the navy did not recover its relative position until the mid-1820s.⁶¹



RUSSIAN 66-gun ships lying off Sheerness in 1795. As part of the Anglo-Russian agreement Vice Admiral Khanykov's squadron was maintained in British dockyards, giving the Royal Navy the opportunity to survey them and take off their lines. (PZ3664)

For much of the struggle with Revolutionary and Napoleonic France, Russia was Britain's ally. Elements of the Baltic fleet co-operated with Duncan in the blockade of Dutch ports, and made a major contribution of fifteen sail of the line to the Helder expedition in 1799. Catherine had experienced some success in attracting British officers into the Russian fleet, but its general state of efficiency did not impress the Royal Navy nor

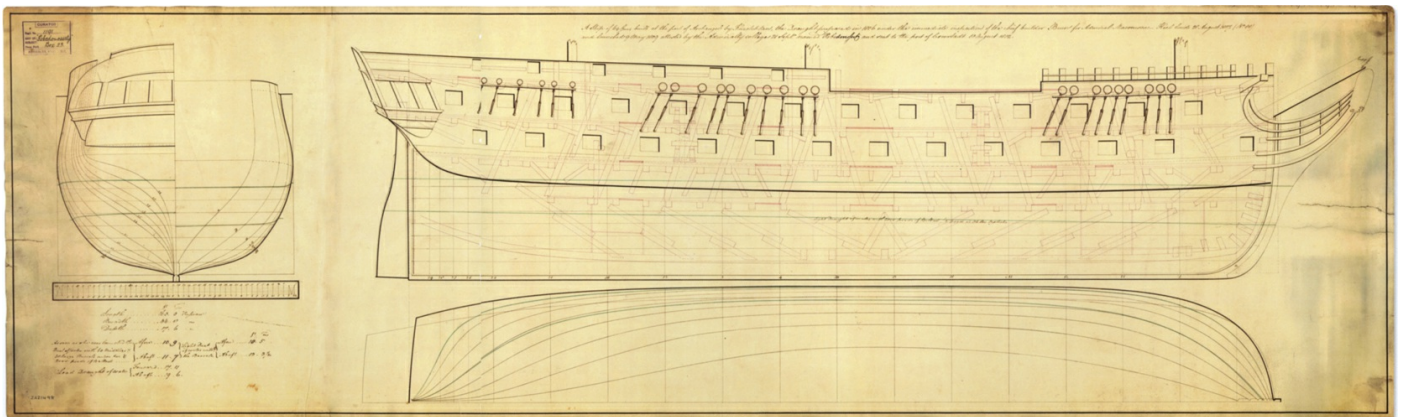
the officials of the Dockyards who had to refit and maintain the Russian ships. They were regarded as poorly built of inferior timber, and a list of the Baltic Fleet in 1805 gives an average age of ten years for thirty-two ships of the line.

In 1798 the Russians deployed some of the Black Sea fleet to the Mediterranean, where a squadron under Vice-Admiral Ushakov occupied the Ionian Islands and after a long siege captured Corfu. The force was withdrawn in 1800, but a more significant development was the formation of a Mediterranean fleet by the dispatch of a squadron from Cronstadt, a long voyage by Russian standards, to join elements from the Black Sea at Corfu. Commanded by Vice-Admiral Seniavin, who had served six years in the Royal Navy, this fleet of ten sail of the line was active against both the French in the Adriatic and later the Turks, where it successfully blockaded the Dardanelles and won a crushing victory over the Ottoman fleet at Lemnos on 19 June 1807.

The events leading up to the Tilsit agreement between Napoleon and the Tsar rapidly turned the Russian fleet from ally via neutral to enemy in a matter of weeks. Having given up Corfu to the French, the Russians were forced to leave the Mediterranean, but in the face of a hostile British fleet took shelter in the Tagus, where they were promptly blockaded. Eventually, in September 1808 Seniavin agreed to the internment of his fleet in Britain and the repatriation of its crews. Eventually, eight two-deckers and two frigates were turned over. While laid up they gradually deteriorated and only two ships returned to Russia in 1813.

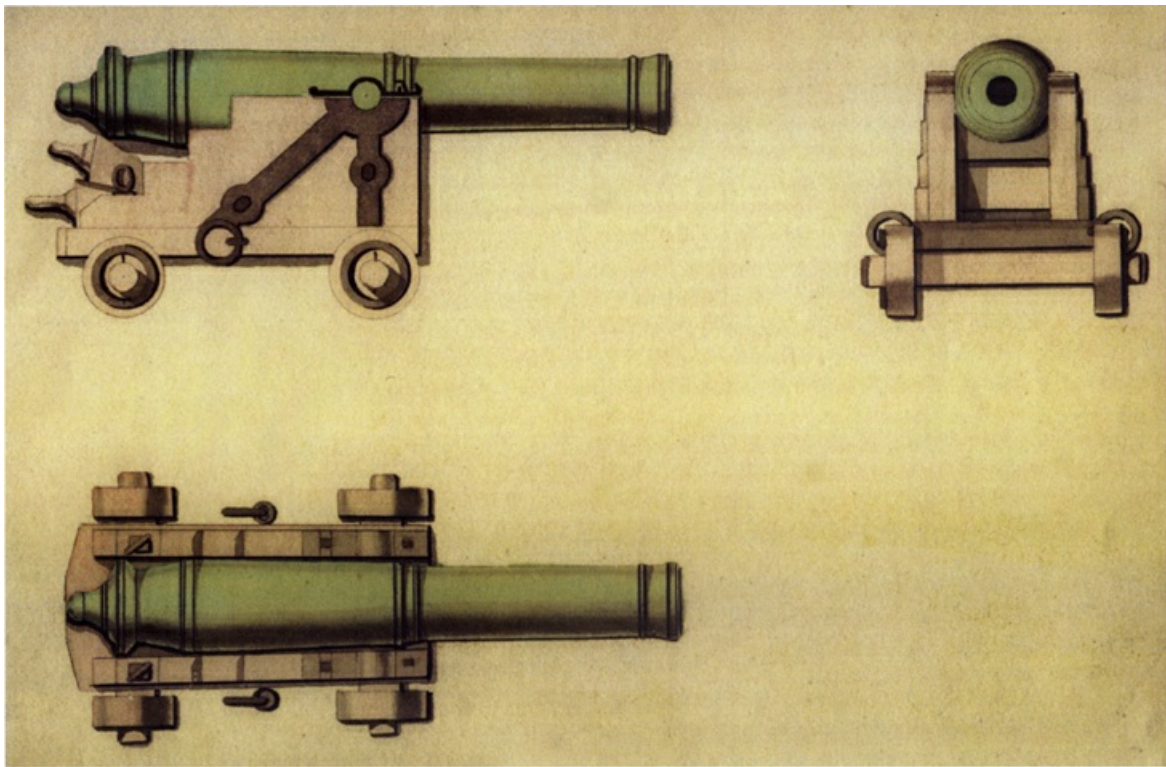
In the 1790s the Baltic fleet could boast eight 100-gun three-deckers of the *Chesma* class (supposedly inspired by, or even copied from, Slade's *Victory*), but they were poorly constructed and by 1801 none was fit for active service. A huge 130-gun ship, the *Blagodat*, was launched in 1800, again modelled on a famous western prototype, in this case the Spanish *Santisima Trinidad*. Armament was usually 3 6pdrs on the lower deck with 18s and 8s respectively on the higher gundecks, and 6pdrs on the upperworks. Contrasting with this investment in concentrated firepower, the majority of the Russian battlefleet was made up of small two-deckers in the 66-gun class, which were built in large numbers down to 1797. Even with 24pdr main batteries, they proved perfectly adequate against their usual opponent, the Swedes (which was equally true for the Black Sea fleet and the Turks). The 74-gun ship came late to the Russian navy, the first pair being launched in 1772, and although they carried 30pdrs on the lower deck they were still relatively small ships, comparing in size with the British 'Common Class'. By 1800 the Baltic fleet's two-deckers comprised twenty 74s and twenty-four 66s.

A unique feature of Russian naval weaponry was the *edimorog*, a large calibre lightweight gun capable of firing a wide range of ammunition including explosive shells. Generally known by the French term *licorne* ('unicorn'), they usually filled a pair of ports on the two lower gun-decks of battleships (and two pairs on 100-gun ships), but they were regarded as a dangerous and doubtful asset by other navies. Eventually the Russian navy came to agree and the gun establishment of 1805 abolished them. It also introduced a homogeneous armament for all two-deckers of new lightweight-pattern 36pdrs and 24s, and added the first carronades (24pdrs) to the upperworks.



A SHIP OF 64 GUNS BUILT AT THE PORT OF ARCHANGEL BY KUROTCHKIN, THE DRAUGHT PREPARED IN 1806 UNDER THE IMMEDIATE INSPECTION OF THE CHIEF BUILDER BRUN FOR ADMIRAL MACOEUSCA. KEEL LAID 28 AUGUST 1807, (NO 88) AND LAUNCHED 1809 ATTESTED BY THE ADMIRALTY COLLEGE 21 SEPTR NAMED *POBEDONOSSETS* AND SENT TO THE PORT OF CRONSTADT 10 AUGUST 1812.

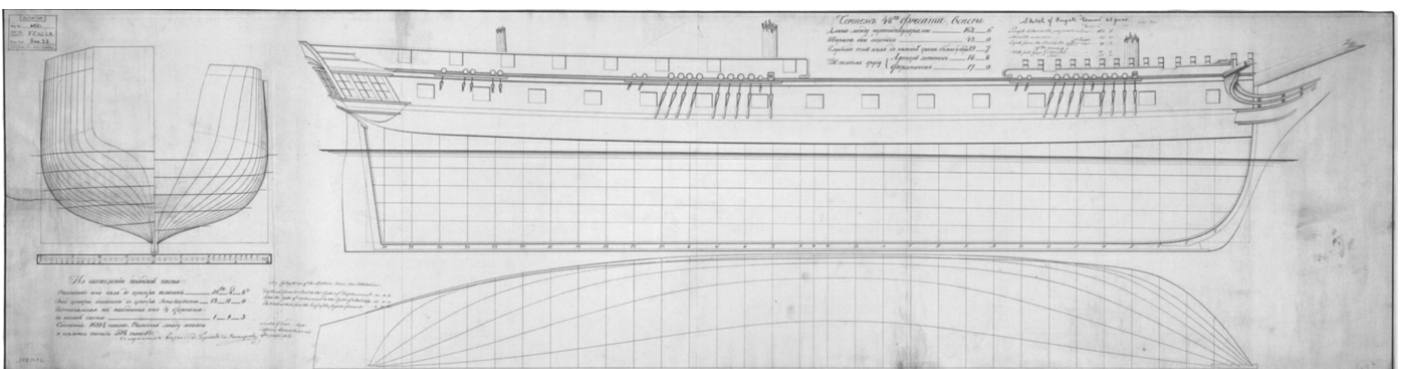
The provenance of this draught is conundrum: on the one hand it is decidedly English in style, calligraphy and even ink colours, but on the other, it is annotated with information that could only have come from Russian sources – the launching draughts of water are quoted in Russian units and a note describes the lower green line as 'Light Draught of water with 2000 poods of Ballast (a pood is 36 lbs English)'. The ship was in British waters with Admiral Crown's squadron in 1812–1814 and may have had the lines taken off then, or this may have been copied from a Russian original and annotated in English. A noteworthy feature of the structure is the system of substantial diagonal braces in the hull; this is not the full trussed frame as developed by Seppings, but a less effective fore-runner, and when considered alongside the numerous top-riders may suggest the ship was lightly framed. This reinforcing may have been required by the ship's heavy armament of twenty-six short 36pdrs, twenty-eight short 24pdrs and fourteen guns on the upperworks (a mix of long 8pdrs and 24pdr carronades). The 'lightweight' guns were supposedly inspired by Swedish models, but there were many other experiments around this time with weapons mid way between carronades and traditional long guns, like the proposals of Sadler, Gover and Congreve in Britain. (J3383)



THE 'edinorog' was a uniquely Russian artillery piece, designed to fire either solid shot or an explosive round. This is a 1780 Model gun of '172-pood' calibre – roughly equivalent to a British 24pdr when firing round shot (the explosive shell weighed less at about 20 pounds). On line of battle ships, it was usual to mount one per deck on each broadside, alongside the solid-shot guns of the nearest calibre. This very limited employment suggest that their advantages were more theoretical than real – they are known to have suffered from massive recoil, and the dangers of handling explosives aboard wooden ships deterred other navies from pursuing similar experiments, so their use in the Russian service may well have been limited.

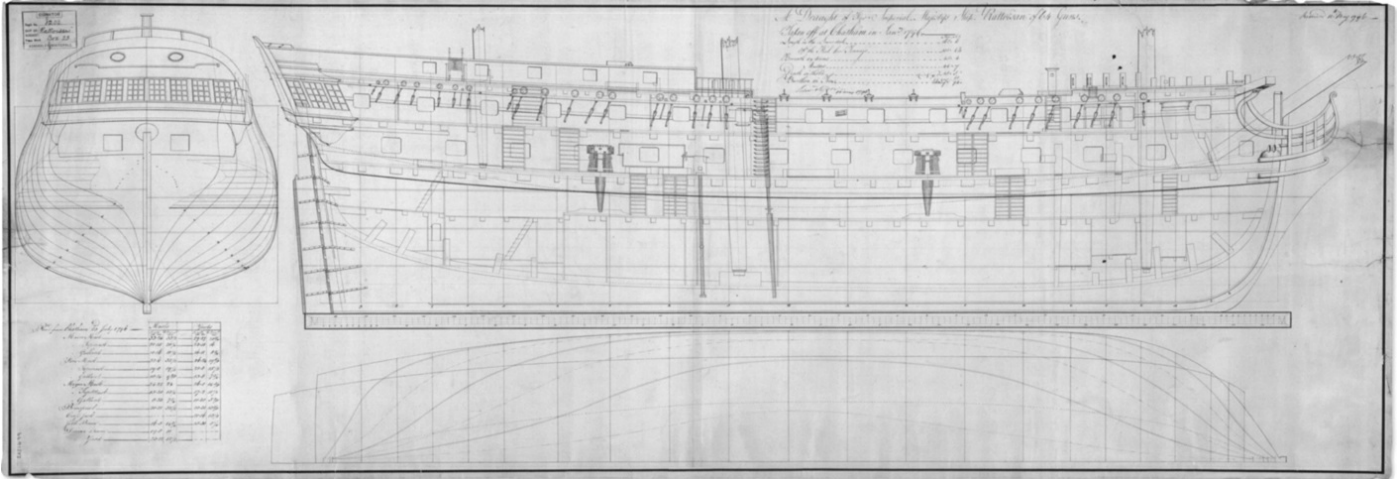
The Black Sea fleet was a recent venture, established in 1770, but growing from seven ships of the line in 1790 to thirteen in 1800. Although an equivalent of a First Rate was not laid down until 1799, the average size of its ships tended to be greater than those of the Baltic fleet, where navigational conditions and the restricted dimensions of the opposing Swedish warships constrained growth. The Black Sea squadron, in fact, introduced both the two-decker 80 and the 24pdr-armed big frigate to Russian service – in the latter case, what were termed 'battle frigates' stood in the battle line when required. The first was launched in 1785 and thus pre-dated the better-known 24pdr frigates of either the French or US navies. However, even this was later than the Swedish *Bellona* class designed by af Chapman, although these usually cruised with 18pdrs and were designed to ship light 24pdrs only when war threatened so that they could reinforce the outnumbered Swedish battlefleet. As counters to these vessels, Russia's Baltic fleet built five 24pdr frigates in the 1790s, and more after 1801, thus becoming one of the first major sponsors of the type – and as potential oceanic commerce-raiders, as much a concern to the Royal Navy after 1815 as US big frigates. This was in marked contrast to Russia's earlier conservatism in cruiser design, being slow to adopt the frigate-form (in either 12pdr or 18pdr calibres), and persevering with small two-deckers until the late 1780s. Not having the same requirement as the Atlantic navies for long-distance, all-weather cruisers, the advantages of a high battery freeboard combined with a low topside height were less compelling. Nevertheless, the Baltic fleet built nine 18pdr frigates before 1800, when they were eclipsed in construction programmes by the 24pdr type.

Although the Russian navy list included sloops, brigs and many of the small craft familiar from other navies, these did not exist in very large numbers. Russia had little ocean-going commerce to protect, and fleet scouting and support duties usually fell to small frigate-like vessels. However, in both the Baltic and the Black Sea it invested heavily in specialist types for inshore warfare, usually craft that could be rowed – including traditional 'Mediterranean' galleys – and amphibious warfare vessels. These were not as ingenious as the special types devised by af Chapman for the Swedish archipelago fleet, but were equally effective in their chosen environment. A significant contributor to this requirement was a force of large sea-going bomb vessels, making both Russian main fleets the only force outside the Royal Navy to employ such vessels on a regular basis. Four survived in the Baltic into the 1790s and two more were built in 1808; in the Black Sea fleet two were in service up to 1795, and another was built in 1806.



[SKETCH OF THE FRIGATE *VENERA*, 48 GUNS]

This is actually a Russian draught whose provenance is unknown, although it may be associated with Samuel Bentham, who was well-connected in Russia, having served there before the war – indeed, Bentham was in Russia from 1805 to 1807 trying to arrange for the construction of British ships on the White Sea. Built at St Petersburg and launched in 1808, *Venera* was a big ship, measuring 162ft 6in between perpendiculars, with a 42ft beam, and a calculation on the draught puts her displacement at 1693 tons (although the conventional figure for burthen would be less). The absence of barricading on the forecastle looks backwards, but the hull form, with its rising floors and wall sides, is more reminiscent of the 1820s and '30s than the first decade of the century. The armament was originally thirty 24pdrs and eighteen 6pdrs, but in 1810 she was converted to a flush two-decker and two 24pdrs and all the 6pdrs were replaced by twenty-eight 24pdr carronades, giving the ship a one-calibre weapons-fit and anticipating the 'double-banked frigate' of the post-war decades. (J3923)



A DRAUGHT OF HER IMPERIAL MAJESTY'S SHIP *RATTVISAN* OF 64 GUNS, TAKEN OFF AT CHATHAM IN JANUARY 1796.

Although in 1796 the ship belonged to Her Imperial Majesty Catherine II of Russia, *Rattvisan* was Swedish-built, but captured in 1790. Designed by the celebrated naval architect F H of Chapman, the ship was one in a class of ten to be built alongside ten frigates (see below) also to a standard design; all were part of a great naval regeneration programme of 1782–85. The 60-gun class was chosen as the smallest that could perform all the battlefleet functions while being the largest that could operate anywhere the Swedish navy felt was a likely scene of action. Originally completed with a 24pdr lower deck battery, there were mobilisation plans to replace these with 36pdrs and move the 24s to the upper deck when war threatened. Both this and the following draught were taken off during maintenance to the Russian fleet operating in the North Sea with Admiral Duncan. *Rattvisan* came back to Britain as part of Seniavin's interned Mediterranean fleet in 1807, but seems to have been allowed to rot away. (J3631)

PORTUGAL

With colonies that still stretched from Macao and Goa to Brazil, Portugal needed to maintain a fleet capable of overseas service. The Portuguese battlefleet was remarkably stable in size for much of the eighteenth century, and during the French wars comprised one small three-decker flagship and about ten two-deckers, divided equally between fairly large 74s and 64-gun ships. Frigates increased in number from thirteen in 1790 to peak at twenty-two in 1800, before a gentle decline set in. Except for one 74 launched in 1802, there was little new building after the early 1790s, and the fleet was kept up to strength by comprehensive rebuilding.

The service had a number of British officers, and as Britain's oldest ally, Portugal actively supported a number of Royal Navy operations. In 1794 five Portuguese 74s (including the *Raino de Portugal*) formed part of Lord Howe's fleet in the Channel, and in 1798 Earl St Vincent detached four of them from their current duties blockading Cadiz to reinforce Nelson in the Mediterranean, although they did not arrive in time for the battle of the Nile. Even if they had, Nelson may not have committed them to battle, having a rather condescending attitude to his allies; he was later to write, 'I have nominally a great force, but anyone is heartily welcome to both the Neapolitan and Portuguese ships.'

The last major contribution of the Portuguese navy to the war against Napoleon was to carry the Braganza court to Brazil in 1807. Most of the active fleet in European waters was involved, including the fleet flagship *Principe Real* of 84 guns, four 74s, three 64s, three frigates, three brigs and a schooner. The remnant of the fleet abandoned to the invading French was only one 74 under repair, plus another 74, a 64 and five frigates and corvettes regarded as unserviceable.

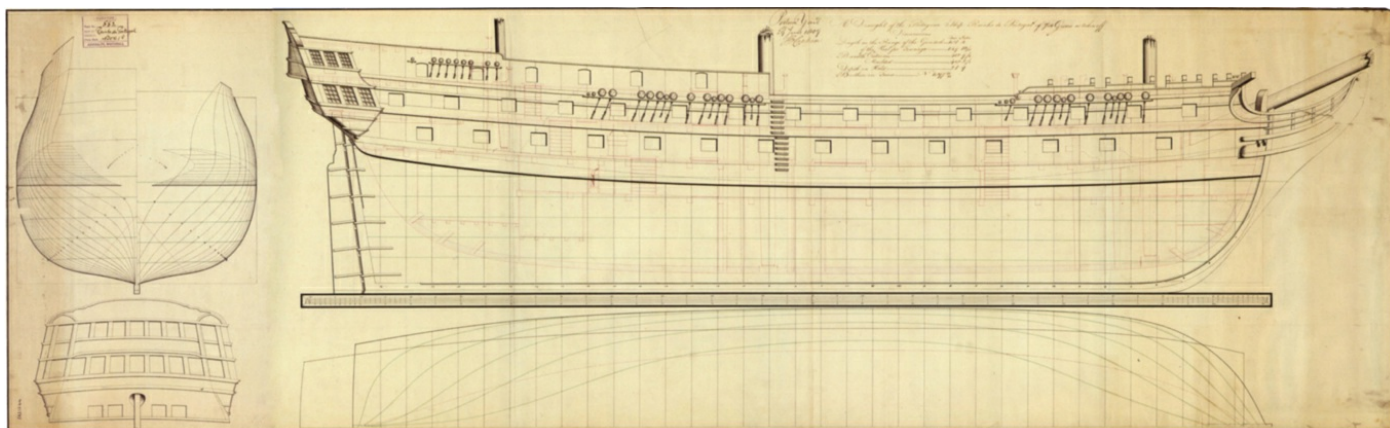
Some of the frigates were large ships, the *Minerva* carrying thirty 18pdrs on the main deck. As an indication of the distant service the Portuguese navy undertook, this ship was captured in the Bay of Bengal in November 1809 by the French frigate *Bellone*. The trifling injuries suffered by *Minerva*'s opponent may suggest that the quality of training in the Portuguese navy left much to be desired.

SWEDEN

As a conventional battlefleet power, Sweden was in decided decline by 1790. Significant losses had been suffered in the most recent war with Russia, but more important politically was the long-term effects of the transfer in 1756 of all the inshore warfare vessels from the blue-water navy's control. Such was the shift in power-balances that in 1780 the chief of the archipelago fleet, the dynamic Henrik af Trolle, became overall commander of all naval forces.

Both fleets had well designed ships, primarily the work of the well-known Fredrik af Chapman. However, in order to rebuild the battlefleet within strict financial limits, Chapman's ships were constrained in size, the 60-gun two-deckers of the *Rättvisan* type being a standard design intended to go anywhere the Swedish fleet was likely to fight. With low topsides and only one level of stern gallery, they were fast and weatherly; they also drew only 19½ft fully loaded, but carried their main battery of twenty-six 24pdrs a frigate-like 7½ft from the waterline. The original programme of fifteen ships was curtailed at ten, and in wartime it was planned to give them a new short 36pdr and move the 24s to replace the

upper deck 18s, but only six ships had been re-armed by the time war broke out.⁶² By 1790 there were only three 74s in the fleet and thirteen ships variously rated between 60 and 66 guns, so apart from the Netherlands, Sweden had on average the smallest battleships in Europe. Almost no new construction was possible thereafter, so numbers dwindled and the average size remained almost static.



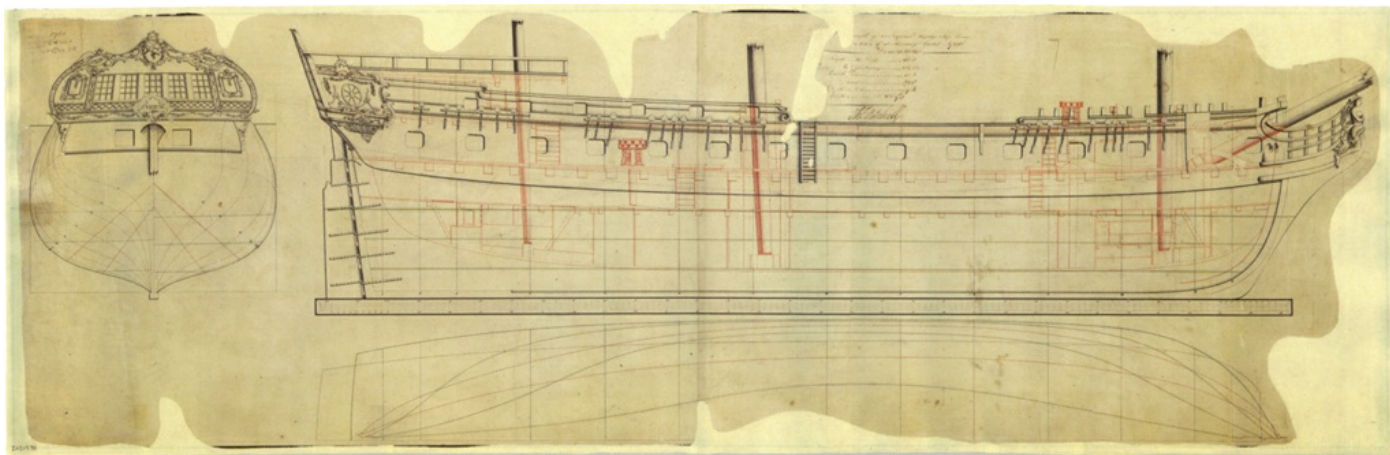
A DRAUGHT OF THE PORTUGUESE SHIP *RAINHO DE PORTUGAL* OF 74 GUNS AS TAKEN OFF PORTSMOUTH YARD, 29TH JUNE 1809.

A relatively large and well designed 74, this ship (often listed as the *Rainha de Portugal*) was as active as any Portuguese battleship during the wars with France. She was part of the squadron that operated with Lord Howe's Channel Fleet in 1794, cruised in the Mediterranean in 1798–99, and went to Brazil as part of the escort for the Braganza royal family in 1807. In the absence of well appointed dockyard facilities in Lisbon, the British undertook the maintenance of the Portuguese fleet, which is how this ship came to be docked and the lines taken off in 1809. (J3203)



A S SHOWN in this nineteenth-century painting, the Swedish frigate *Venus* was captured in 1789 in very unlikely circumstances by the Russian cutter *Merkurii*.

Chapman's frigates of the *Bellona* class were part of the same programme as the 60s, and although normally mounting twenty-six 18pdrs, they could carry 24pdrs in an emergency (*Venus* was so armed when captured). The class was widely admired – the archives of most of Europe's major navies include a draught of one. The career of *Venus* herself may partly explain the dissemination: she was captured by the Russians in Danish-Norwegian waters (the Danish draught of the ship is certainly the most decorative); she then served in the Mediterranean with Seniavin, and when she could not escape with the rest of the squadron she was turned over to the Neapolitans.



A DRAUGHT OF HER IMPERIAL MAJESTY'S SHIP *VENUS* AS TAKEN OFF AT SHEERNESS YARD 1796.

Another Swedish-built Russian prize, *Venus* was originally a 40-gun frigate, one of the ten-ship *Bellona* class built under the same programme that produced the 60-gun ships. Launched in 1783, the ship was captured in neutral Norwegian waters by the Russians in May 1789. The Swedish navy being smaller than desirable, Chapman had designed the frigates to back up the battlefleet in an emergency, so they could be converted to carry a 24pdr main battery, but they were usually 18pdr ships. There is also a draught of the ship in the Danish archives dated

1789, which appears to have been copied from the Swedish original, although all have slight variations, including the number of quarterdeck ports and whether there is a bridle port or not. The ship was part of Seniavin's Mediterranean fleet, and when she failed to escape with the rest sailed to Naples for internment, and was eventually turned over to the Neapolitan navy. (J3924)

THE UNITED STATES OF AMERICA



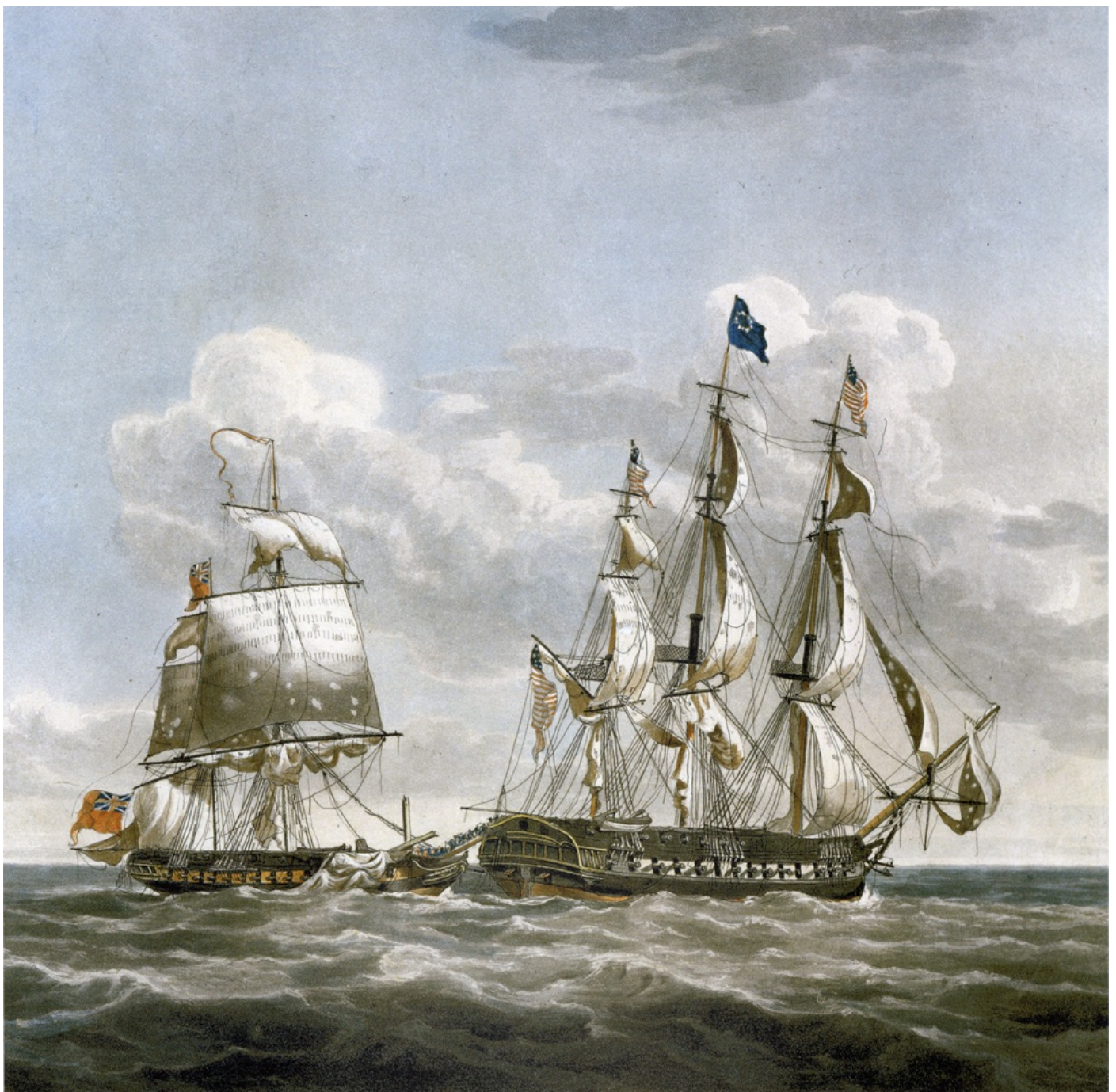
When independence was won in 1783 the Continental and states naval forces were disbanded. The United States Navy was, therefore, a new service, tracing its foundation to an act of March 1794 authorising the construction of warships to counter the depredations of the Barbary powers of North Africa. It was born into a world at war, and its subsequent development was determined by the needs of a militarily weak neutral to protect its interests. The 'Quasi-War' with France in 1798–1800 and a clash with Tripoli encouraged expansion, but no frigate was launched between 1800 and 1813. Furthermore, basically pacifist administrations after 1801 were very reluctant to spend money on a navy, and the limited resources that were available were utilised on a programme of gunboat construction for coast defence.⁶³

As a result of politically-inspired neglect, at the beginning of 1812 the US Navy had only fourteen vessels ready for sea service: the three 44-gun frigates *United States*, *Constitution* and *President*; the smaller frigates *Congress*, *Essex* and *John Adams*; the ship sloops *Hornet* and *Wasp*; brig sloops *Argus*, *Syren* and *Nautilus*; and the smaller brigs *Enterprise* and *Viper*. There was also the brig *Oneida* on Lake Ontario and, scattered around the creeks and harbours of the eastern seaboard, some 165 gunboats, 62 of which were in commission. Laid up in Ordinary (reserve) were the frigates *Constellation*, *Chesapeake*, *Adams*, *New York* and *Boston*, and in June 1812 it was decided to repair the first three, *Constellation* being ready for service by October and *Chesapeake* a month later. *Adams* needed more substantial work and was reduced to a powerful corvette, not completing until the middle of 1813.

However small its numbers, the US Navy had a distinct qualitative advantage. The long wars with France had forced the Royal Navy to build large numbers of ships, the pressure for sheer quantity resulting in designs which were regarded as the smallest equal to their various roles. It had expanded beyond a size it could conveniently man, even with impressment – indeed, its requirements exceeded pre-war estimates of the whole seafaring population of Great Britain – and as a consequence its ships were thinly, and in many cases poorly, manned. For America the reverse was true: her navy required only about five per cent of the country's professional seamen, and in consequence was all-volunteer, and its best ships were designed to be superior individually to any European equivalent.

The most famous example of this design philosophy was the *Constitution* class of large frigates. According to Joshua Humphreys, who was responsible for the concept, they were inspired by the French *rasées* of 1794, they having cut down several of their seventy-fours to make heavy frigates.⁶⁴ They were not the first frigates to carry a main armament of 24pdrs, but were original in having a continuous upper deck instead of separate quarterdeck and forecastle, allowing them to mount a second complete battery on this so-called spar deck. When they were first completed, they came in for some criticism from their officers, who variously complained of their sailing qualities, lack of stowage, poor stability and the hogging stresses caused by such a heavy weight of metal. These problems had been ironed out by 1812 – including removing the guns in the waist on the spar deck – and there were no more complaints.

With the scantlings of 74s, they were predecessors of the German 'pocket battleship' concept: as Humphreys himself predicted in 1794, 'From the construction of those ships, it is expected the commanders of them will have it in their power to engage, or not, any ship they may think proper; and no ship, under sixty-four, now afloat, but what must submit to them.' They were not identical in qualities, the received wisdom of the service making *President* the best. Bainbridge thought her 'one of the finest ships in the world' and offered Rodgers \$5000 to change ship with him when he had *Constitution* (Rodgers refused). *United States* was the least regarded. Her sailing qualities earned her the nickname 'the *Wagon*', and even after she had captured the *Macedonian*, she was outsailed by her jury-rigged prize.



In the War of 1812 the big American '44's proved the validity of their designer's intention to produce a ship capable of defeating any opponent it could not escape from. When first built they did not cause a stir in other navies, and they were not even universally loved by their own officers, but after 1812 their qualities became almost legendary – on the one side their originality was wildly exaggerated, while on the other there was a concerted attempt to prove that they were not real frigates but line of battle ships in disguise. Both views were nonsense: they were simply big frigates, inspired according to their designer, by the French *rasées* of the 1790s. At first they had been 'double-banked', but the guns in the waist had been removed long before 1812 to prevent over-stressing the hulls – as shown in the Nicholas Pocock print of the USS *Constitution* defeating the *Java* in December 1812. As an ex-seaman Pocock liked to get his ship details right, and relative size of the combatants is instructive. (PY8107)

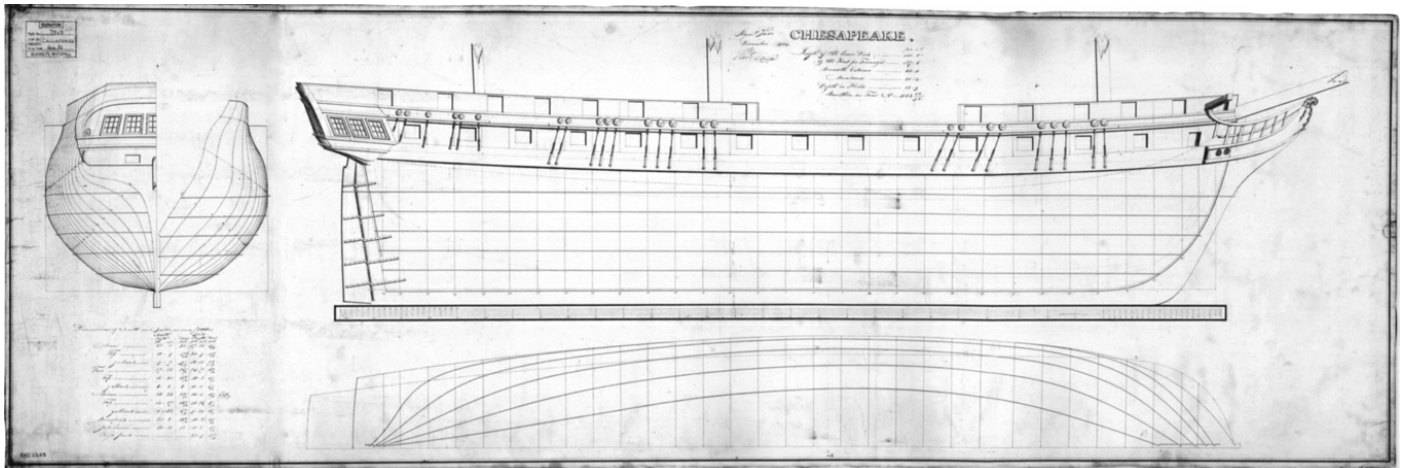
The frigates armed with 18pdrs were more conventional, although they were still large by European standards. *Chesapeake*, originally intended to carry 24pdrs, was considered 'over-built' by her British captors, and her sailing qualities insufficient to warrant copying her hull lines – the prize captain was particularly critical of the excessive overhang of the stern which resulted in slamming. With the exception of the *Essex*, the smaller frigates contributed little to the war. Unlike their larger cousins, these ships had no advantage in firepower or sailing over their British counterparts, and it is significant that *Essex* was most successful in waters where she was unlikely to meet a British frigate. Captain Porter had little confidence in his ship's sailing abilities or her short-range carronades, so when he came up against HMS *Phoebe*, he could call on neither firepower nor manoeuvrability.

Newest and most effective of the sloops were the 18-gun *Hornet* and *Wasp*, originally designed as brigs but in a prescient move, converted to ship rig by 1812. They were somewhat larger than their likely British opponents, but it was the ship rig that gave them the real advantage over the brig sloops of the *Cruizer* class they were to meet during the war. With only two masts the balance of a brig rig was easily upset by damage aloft, whereas a ship could retain manoeuvrability with far more injury to her rigging.

Brigs, of course, required smaller crews, and even the well-manned US Navy found them useful. The two largest were the 16-gun *Argus* and *Syren*, and while 'not extraordinary in size or design',⁶⁵ both were fast sailers, the latter being slightly sharper in hull form. Of the remaining brigs,

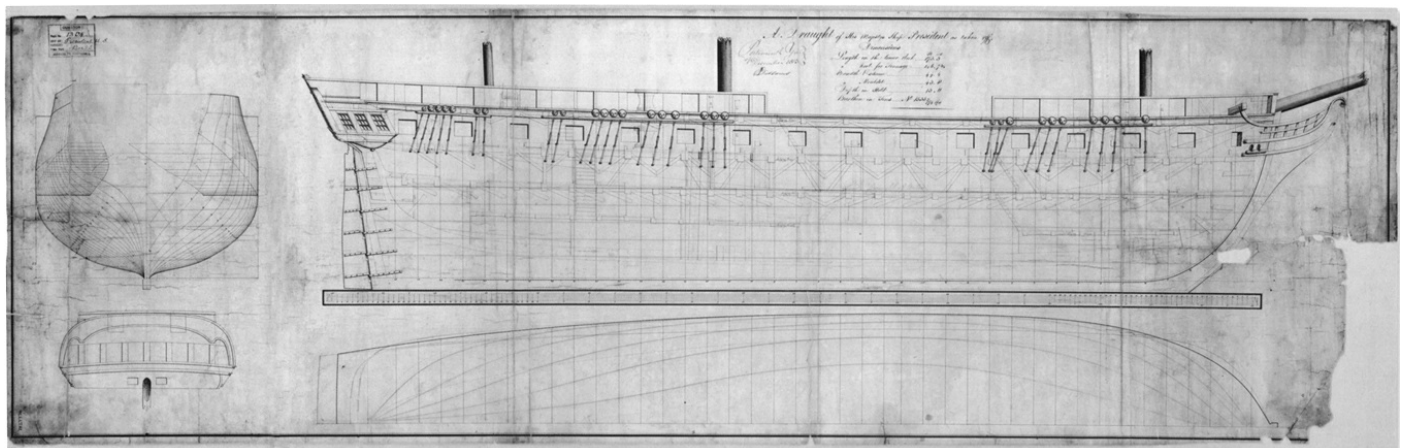
Enterprise and *Vixen* were purpose-built, the others being purchased. All had been altered from other rigs, the *Viper* having been a cutter and the rest schooners – and all were said to have lost out in sailing qualities by the conversion, which raises the question of why the US Navy did it. Schooners will always have an advantage to windward over any square rig, but even with square topsails a schooner is less efficient before it. There was also the matter of fighting qualities: in a genuine warship, the ability to back square canvas gave them a manoeuvring advantage in battle, and although not as resistant as a ship, a brig had a greater variety of canvas than a schooner, which made the rig less vulnerable to a single disabling hit. Not surprisingly, after a war in which its small craft spent much of their time trying to escape superior forces, the US Navy revived its interest in schooners from 1815.

Despite the months of contemplating war, Madison's government made no preparations for expanding the navy. At the end of 1811 the Secretary of the Navy had reported that twelve 74s and twenty frigates was the minimum force needed to protect the American coast properly in the event of conflict with either of the main European belligerents. However, it took the naval actions of 1812 to spur the administration into action, the first major building programme for more than a decade being voted by Congress on 23 December 1812. It provided for six more 44-gun frigates, enlarged from the *Constitution* concept, and four '74's, which were intended, like the frigates, to be proportionately more powerful than their European equivalents. Wartime conditions meant that none of these ships saw service in the conflict. Indeed, it was unrealistic to expect the British to allow such powerful ships to get to sea, or even to be completed, if they could possibly stop them. The *Independence*, the most advanced 74, was closely blockaded in Boston right at the end of the war.⁶⁶



C HESAPEAKE PLYMTH YARD, DECEMBER 1814.

Captured in a very bloody 11-minute engagement with the *Shannon* in 1813, *Chesapeake* was the first American frigate to fall into British hands during the war and was subject to intense scrutiny as a result. The prize captain who brought the ship to Britain was not greatly impressed by her sailing qualities and felt there was no argument for copying the hull form. He was particularly critical of the excessive overhang of the stern – clearly seen in the draught – which occasioned slamming in a following sea. The survey found the ship well put together, using quality materials, but considered the ship 'over-built'; it was said that the ship had been intended to carry 24pdrs and had the scantlings to match. There was some discussion about employing the prize as a troopship, but the end of the war put paid to the proposal. The ship was sold in 1819. (J5473)



A DRAUGHT OF HIS MAJESTY'S SHIP *PRESIDENT* AS TAKEN OFF. PORTSMOUTH YARD, 1ST DECEMBER 1815.

This draught shows the wartime appearance of the famous *Constitution* class, although the three ships differed somewhat from each other. The British made much of the spar deck turning them into 'double-banked' frigates, but by this time the gangways were not regularly armed, experience having proved that too many guns strained the ships. – the number of diagonal dagger knees tell their own story. As the greatest trophy of the war the British were keen to keep the ship in service, but the survey that produced this draught concluded that she needed an expensive 'great repair' (essentially rebuilding). This may have been a product of her grounding during the final chase, although the survey concentrates on the symptoms of old age, and eventually it was decided that a more cost-effective solution was to break up the ship and build an exact replica, which was duly ordered in 1818. (J3607)

Far more useful to the immediate war effort was the programme of six big ship sloops approved in March 1813. In effect, these flush-decked vessels were to become the corvette equivalent of the 44s – they were fast and weathery, so could escape most larger predators, but could

outfight any of the standard British sloop classes. Of the two basic designs, *Argus*, *Erie* and *Ontario* had the sharper hull form, but their steering was wayward as built and they needed much modification. The real success story was the other class, for although the *Frolic* was soon captured, *Wasp* and *Peacock* became highly effective commerce-destroyers in the last year of the war. The British were not greatly impressed by the hull design of the *Frolic*, the fore and after bodies being significantly mis-matched in the opinion of the Surveyors, which resulted in heavy pitching.

Although not government-financed, the other great contributor to the American naval effort after 1812 was privateering. After years of embargo and blockade, in order to survive commercially American shipowners had developed fast-sailing merchant vessels, often schooner-rigged, which made ideal letters-of-marque. 'Letters-of-marque' like the *Grecian*, of the extreme Baltimore build, were not privateers in the strictest sense, since they were primarily traders whose commission allowed them to take prizes if the opportunity arose. Later, specialist privateers were built, one of the largest being the *Prince de Neufchatel*. Only captured after an epic chase, she greatly impressed the Royal Navy, which was planning to build a copy when the war came to an end.

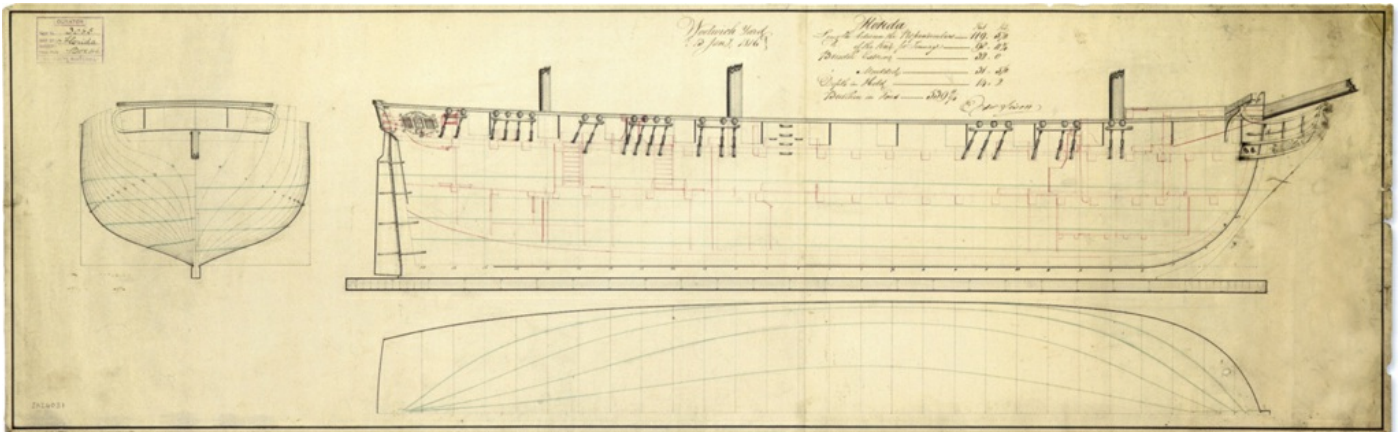
The war did much to spread the reputation of the so-called 'Baltimore clipper', but actually European navies did not need much convincing. Long before the outbreak of the War of 1812 the British had used the *Revenge* (renamed *Flying Fish*) as the prototype for their *Shamrock* class, the first three-masted schooners in the Navy. Furthermore, in earlier years the Royal Navy had taken a number of American-built schooners, like the ex-French *Coureuse* and the ex-Danish *Subtle*, so their qualities were already widely appreciated. Fast and weatherly as they were, American schooners with their low freeboard and towering canvas were difficult and dangerous to handle. They did not tolerate much topweight by way of armament and their scantlings were light in the extreme, all of which restricted their value as fighting ships. As a result European navies preferred to employ them for reconnaissance and dispatch duties, although they were also used to hunt their own kind in the anti-privateer role. After suffering eighteen months of close blockade, the US Navy knew the limitations of conventional warships and in 1815 planned a fleet of twenty Baltimore clipper schooners to act as commerce-raiders, but peace was agreed before the programme was implemented.



THIS Baltimore clipper schooner was painted by Lt George Tobin RN while his ship was in the Chesapeake in 1794. It is an example of the Royal Navy's familiarity with the type long before the War of 1812. (PU8895)

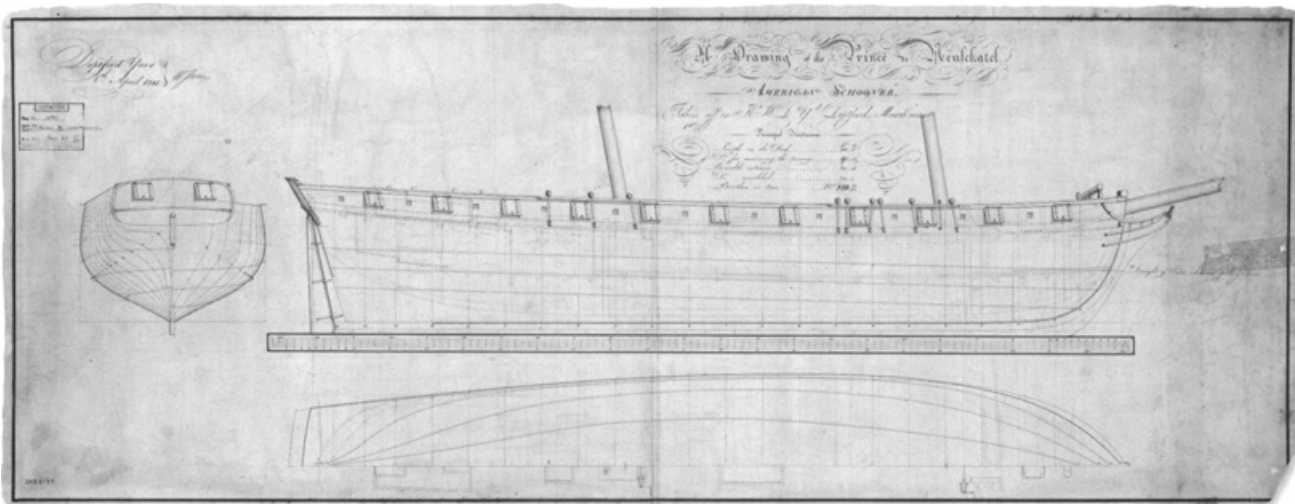


A PERFECT demonstration of the advantages of a fore-and-aft sail plan over the square rig: the frigate *Andromache* in pursuit of an American schooner. The frigate is sailing as close to the wind as she can safely manage, but the schooner 'points higher' (her bow is closer to the wind direction) and unless the frigate is sailing significantly faster, which is unlikely the schooner she will soon pass across the bow of her pursuer and escape to windward – something that happened frequently and led to exaggerated claims for the speed of schooners, whereas the advantage was actually a tactical one of rig efficiency. One might imagine that at this moment the frigate has her best gunner aiming a bow chaser at the schooner's top-hamper, hoping to bring down a spar – the only hope of preventing her escape. The interest of this watercolour is enhanced when it is understood that the artist, George Tobin, was captain of *Andromache* at the time, and on 18 January 1814 his frigate captured the American privateer *Fair American*. (PAG9754)



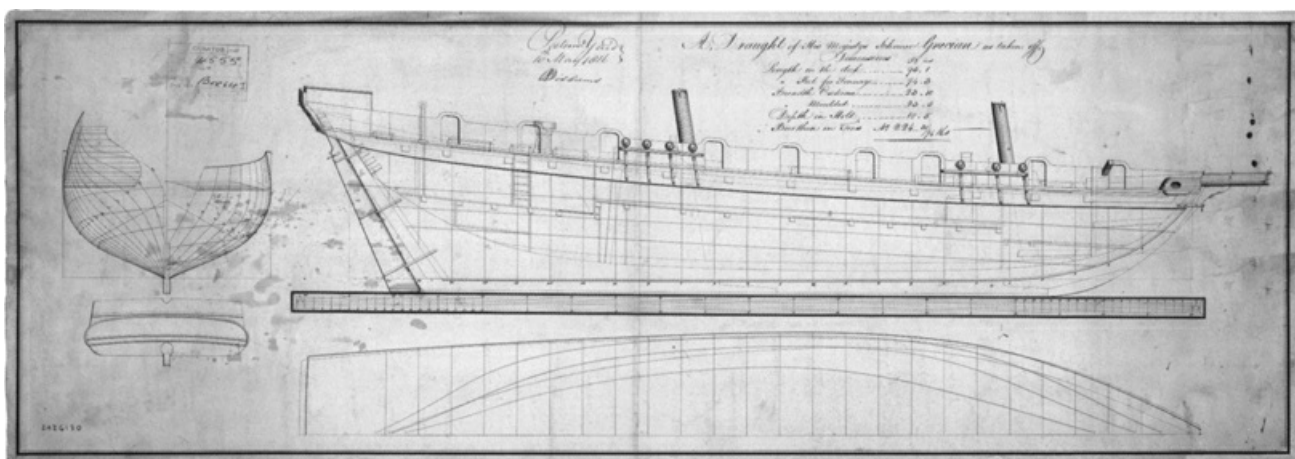
F'LORIDA. WOOLWICH YARD, 13TH JANUARY 1816.

The big flush-decked ship sloops of this class were among the few war-built vessels to see action. Although the career of this ship, as USS *Frolic*, was cut short when she was captured by the frigate *Orpheus*, her sisters *Wasp* and *Peacock* proved near-perfect long-range commerce-destroyers in the last year of the war and more than a match for the *Cruizer* class brigs they were most likely to encounter. The British once again surveyed the prize carefully and reported her well built, but were less flattering about the design, which they calculated was unbalanced: there was a significant disparity between the displacement of the fore and after bodies which they felt would lead to poor seakeeping. Nevertheless, the ship was given one postwar commission, before being broken up in 1819. (J7172)



A DRAWING OF THE *PRINCE DE NEUFCHATEL* AMERICAN SCHOONER, TAKEN OFF IN H M D YD DEPTFORD, MARCH 1815.

Unlike the majority of privateers, which were fine sailing ships but lacked fighting qualities, this big schooner had proved her powers of resistance by fighting off the armed boats of the frigate *Endymion*. She had only been captured after a day-long chase in heavy weather at up to 13kts, pursued by *Leander* and *Newcastle*, both built to match the American 44s and among the fastest ships in the Royal Navy. In April 1815 the Admiralty ordered a schooner based on her lines to be built at Woolwich Yard, and although the order fell victim to post-war retrenchment, the plan is a tribute to the effect the *Prince de Neufchatel* had on the Royal Navy, (J1261)



A DRAUGHT OF HIS MAJESTY'S SCHOONER *GRECIAN* AS TAKEN OFF PORTSMOUTH YARD, 10TH MAY 1816.

Any ship carrying a 'letter of marque and reprisal' might be described as a privateer but for every purpose-built vessel which cruised purely for the attack on enemy trade there were always many more for whom the licence was carried as 'insurance' – to allow them to make a legal capture if the opportunity arose during a normal trading voyage. The failure to make the distinction has led historians to distort the numbers involved, and the efficacy of privateering. *Grecian*, for example, had borne a licence for five months when captured in May 1814, but had made no prizes. Although rakish and warlike, these Baltimore schooners were cargo-carriers primarily, but they were the product of trading in times of war, blockade and embargo, when fortunes were to be made running small quantities of scarce (and consequently high-value) commodities. Nevertheless, they made excellent improvised privateers, and when captured were in great demand from British commanders, who found them an ideal weapon to turn against their original employers. (J7988)

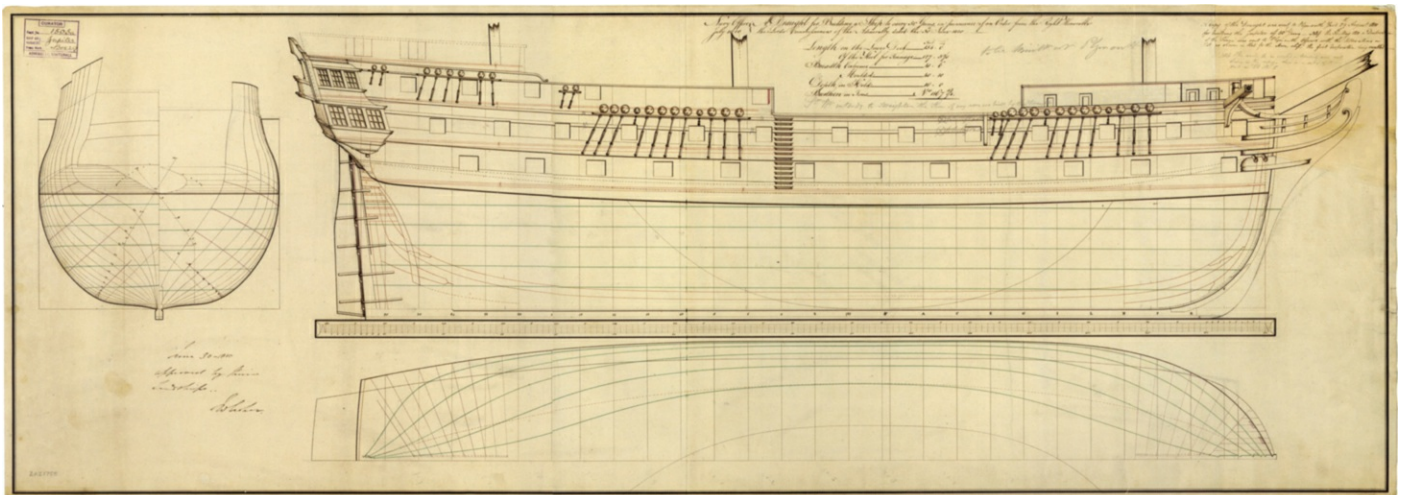
SOURCES AND NOTES

Further information on incidents mentioned in the text can be found in the standard chronicle of the period, William James, *The Naval History of Great Britain* (various printings, but the expanded edition with additions by Captain Charnier is probably the best; 6 vols, London 1837). The principal primary source is an analysis of the monthly lists of the disposition of ships in Adm 8/- series, with some reference to the Admiralty Board Journals in Adm 7/- (both preserved in The National Archives, Kew). All other specific sources are given in the footnotes following.

NOTES

- 1 The National Archives, Adm 8/- series, monthly lists of ships, their captains and stations.
- 2 Captain A Murray, *Memoir of the Naval Life and Services of Admiral Sir Philip C H C Durham* (London 1846), p80.
- 3 The apparently oddly-named British *Ville de Paris* of 1788 celebrated what was at that time the unique achievement of capturing a French First Rate (and the fleet commander whose flag she flew), at the Saintes in 1782.
- 4 Quoted in William James, *The Naval History*, Vol II, p43 I.
- 5 Cornwallis seems to have insisted on the *Royal Sovereign* to carry his flag as C-in-C West Indies, and certainly refused to abandon his damaged flagship, leading to his court martial and resignation.
- 6 The Spanish retained the old *San Fernando*, 94 of 1765, and rebuilt the *Rayo* as a flush three-decker, but even these ships were far larger than contemporary British Second Rates. Both Denmark and Portugal had kept a single small three-decker as fleet flagships, but neither was operational by the 1790s.
- 7 Hurd was conducting the Royal Navy's first comprehensive charting of the approaches to Brest, and had proposed an anchorage for the fleet that Cornwallis clearly disapproved of. John Leyland (ed), *The Blockade of Brest 1803–1803*, Navy Records Society (London 1902), Vol II, p 123, Cornwallis to Melville, 6 November 1804. Anecdotal evidence of their poor sailing qualities is legion: Hotham, for example, remembered seeing the '*Blenheim*, 98, a bad sailer and crank ship, laying down under a press of sail frightfully' (Vol I, p80); he also noted that *the Duke* sailed better with a jury main mast than the original one (Vol I, p38). A M W Stirling (ed), *Pages & Portraits from the Past; Being the private papers of Sir William Hotham*, 2 vols (London 1919); ironically, the *London* was only in a position to capture Linois's *Marengo* because Admiral Warren, compensating for her abysmal sailing, had *London* stationed far to windward of the rest of his squadron.
- 8 This needs one qualification; a fully stored 80-gun ship drew about the same mean draught of water as a Second Rate – up to 25 ft – so they could not be employed any closer inshore.
- 9 *The Naval History*, Vol VI, p115.
- 10 Strictly speaking, most of these are James's 'Middling Class', but to avoid undue complication they have been combined with the 'Common', while the 'Large' comprises very large 18pdr ships and all 24pdr 74s.
- 11 See, for example, Collingwood's detachment of Martin after Baudin in October 1809, or Nelson's remarks about a fast division before Trafalgar (James, *The Naval History*, Vol IV p445; III, p381).
- 12 Strictly speaking, *Cumberland* was only Middling Class, but she was brand new.
- 13 According to Vice-Admiral William Stanhope Lovell, *Personal Narrative of Events, From 1799 to 1816* (2nd ed 1879), p 13: *Renown* was 'by far the best sailing ship of the squadron'.
- 14 See Brian Lavery, *The Ship of the Line*, Vol I, p129.
- 15 The last French 64 built was *the Jason* of 1779, and the last in service the *Brillant* (broken up in 1794); the last British-designed 64 was the *Nassau* ordered in November 1782; and the last Spanish 64 *the Asia* of 1789. Dutch 64s sometimes carried 36pdr main batteries.
- 16 Quotations are from Captain William Penrose Mark-Wardlaw (ed), *At Sea with Nelson: being the life of William Mark, a purser who served under Admiral Lord Nelson* (London 1929), p175; and Augustus Phillimore, *Life of Sir William Parker*, Vol I (London 1876), p220.
- 17 *Repulse*, lost off Brest in 1800, was an exception.
- 18 A 64 would probably draw 2–3ft less than a large 74.
- 19 Quoted in Dudley Pope, *The Great Gamble* (London 1972), p227.
- 20 H G Thursfield, *Five Naval Journals, 1789–1817*, Navy Records Society (London 1951), p62.
- 21 These were the *Flibustier*, *Brave*, *Brutus*, *Hydre* and *Scevola*. William James's best guess at their armament was 28–24pdrs, 18–12pdrs and 4–3 6pdr carronades, and this is probably the Admiralty's official estimate. In fact they retained the original 28–36pdrs main batteries and carried between 14 and 20 guns (18pdrs or 12s) on the upperworks. None survived longer than 1797.
- 22 Following official sources Jean Boudriot, the great French naval authority, treats the ship as an 18pdr vessel, but she was considerably bigger than other ships of that class and an oddity in having only twenty-six upper deck ports on the broadside (the bridle ports could only be used in chase). She was also designed by the Baron de Bombelies, who had been a naval officer but was not a formal *ingénieur-constructeur*. Whatever her designed armament, she was carrying 24pdrs when captured and it was this fact that so impressed the British.
- 23 This ship was later found to be strained by the heavier guns, which were replaced while the ship was on the Halifax station in 1805; the alteration was confirmed on her return to Britain in 1807. *Endymion* was also temporarily relieved of her 24pdrs, but they were replaced after her 1812–13 refit.
- 24 Julian Corbett (ed), *Private Papers of George, second Earl Spencer*, Navy Records Society (London 1913), Vol I, pp 142–6.
- 25 Quoted in James, *The Naval History*, Vol III, pp366–7.
- 26 Richard Saxby, 'English and French Frigates', *The Mariner's Mirror* 79 (Aug 1993), pp334–5.
- 27 Reviewed in the *Naval Chronicle* VIII (1802), pp33ff.
- 28 Sir R V Hamilton (ed), *Letters and Papers of Sir Thomas Byam Martin*, Vol 1, Navy Records Society (London 1903), p176.
- 29 *Conflagration* was burnt at the same time, but she was abandoned and fired to prevent capture.

- 30 Lt William Bowers, *Naval Adventures During Thirty-Five Years Service*, 2 vols (London 1833).
- 31 Their original rig is uncertain: possibly schooner, brigantine, or one of the small-craft rigs used for ship's boats.
- 32 The problem was taken seriously enough for the Admiralty to introduce the rank of Sub-Lieutenant in December 1804 expressly to provide gunbrigs with a second in command.
- 33 He was a confidant of St Vincent and Admiral Markham and corresponded with both on technical matters. See the Navy Records Society volume *The Correspondence of Admiral John Markham* (London 1904).
- 34 A letter to a friend from Dr William Cullen-Brown of HMS *Aetna*, quoted in the *Naval Chronicle* XXII (1809), pp206–213, 287–290.
- 35 John C Dann (ed), *The Nagle Journal, 1775–1841* (New York 1988).
- 36 He designed the frigate *Triton* of 1796, probably the *Ethalion* of 1800, and possibly had a hand in the 74-gun *Plantagenet* of 1796.
- 37 There is a scathing, if none too accurate, attack on the *Valorous* by a correspondent in the *Naval Chronicle* XX (1808), pp276–7.
- 38 Sir C Markham (ed), *The Correspondence of Admiral John Markham*, Navy Records Society (London 1904), p37.
- 39 These schooners are discussed by Howard Chapelle in *The Search for Speed under Sail* (New York 1967 & London 1968), [Chapter 4](#), with illustrations.
- 40 As footnote 34.
- 41 Sir J K Laughton (ed), *The Letters and Papers of Charles, Lord Barham*, Navy Records Society, Vol I (London 1907), p296.
- 42 Interestingly, the only source of this quotation seems to be Robert Fulton himself, who was never objective when writing about the struggle to sell his ideas.
- 43 This section is based on Robert Malcomson's essays on 'British shipbuilding on the Lakes' and 'Ships-in-frame: the fir frigates', in R Gardiner (ed), the *Naval War of 1812* (London & Annapolis, MD 1998); and the same author's *Warships of the Great Lakes* (London & Annapolis, MD 2001).
- 44 Most of the statistics in this and subsequent sections are taken from Jan Glete's invaluable *Navies and Nations: Warships, Navies and State Building in Europe and America 1500–1860*, 2 vols (Stockholm 1993).
- 45 Frederick Hoffman, *A Sailor of King George* (1901; reprinted London 1999), pp109–110.
- 46 For a list of French battleships, see Steve Marthinsen, 'Trench Sail-of-the-Line in the Napoleonic Wars (1792–1813)', *Warship 1994* (London 1994), pp9–21. A later and more comprehensive source is Cdt Alain Demerliac's series *Nomenclature des navires français*, the relevant volumes being those covering 1774–1792, 1792–1799 and 1800–1815 (Nice 1996, 1999 and 2003).



A DRAUGHT FOR BUILDING A SHIP [JUPITER] TO CARRY 50 GUNS, IN PURSUANCE OF AN ORDER FROM THE RIGHT HONORABLE THE LORDS COMMISSIONERS OF THE ADMIRALTY, DATED THE 30TH JUNE 1810. NAVY OFFICE JULY 1810.

The last class of 50-gun ships was designed by Sir William Rule with a hull form based on the reduced lines of the Danish *Christian VII*. A pencil note states that 'Sr Wm intends to straighten the sheer if any more are built by this Draught' and this was applied to the follow-up ships *Salisbury*, *Romney* and *Isis*, although the last was completed as a frigate to an entirely different design. This late addition to a type widely regarded as obsolescent has been quoted as an example of the conservatism of the Royal Navy, but the 50-gun ship fulfilled a particular role for which there was continuing demand into the nineteenth century: that of an economical flagship for minor stations, and the ships of this class served as such into the 1820s at Halifax, Newfoundland, Jamaica and the Leeward Islands. (J4052)

- 47 For fuller details and illustrations of these craft, see R Gardiner (ed), *The Campaign of Trafalgar* (London & Annapolis, MD 1997), pp66–68.
- 48 *The Naval Chronicle* XXVII (1812), pp23–24.
- 49 Jean Boudriot, *The History of the Trench Trigate, 1630–1830* (Rotherfield 1993).
- 50 Captain William Penrose Mark-Wardlaw (ed), *At Sea with Nelson: being the life of William Mark, a purser who served under Admiral Lord Nelson* (London 1929), p185 & p189.
- 51 John Harbron, *Trafalgar and the Spanish Navy* (London 1988), p82.
- 52 Quoted in Harbron, p24.
- 53 The official conversion draught is reproduced in Don Enrique Manera Regueyra *et al*, *El Buque en la Armada Espanola* (Madrid 1981).
- 54 The log of her sea trials in 1785 is quoted in Harbron, p43.
- 55 Jaap R Bruijn, *The Dutch Navy of the Seventeenth and Eighteenth Centuries* (Columbia, SC 1993).
- 56 Quoted in J F Fischer, *de Delft* (Franeker 1997), pp134–6.
- 57 C Lloyd (ed), *The Keith Papers*, Navy Records Society, Vol III (London 1955), pp 15–19, 113.

- 58 This section is largely based on H C Bjerg & J Erichsen, *Danske Orlogsskibe 1690–1860* (Copenhagen 1980).
- 59 The correspondence, unfortunately damaged and undated, is preserved in copies in PRO Adm 95/42.
- 60 For further details of comparative sailing performance, see R Gardiner, *Trigates of the Napoleonic Wars* (London & Annapolis, MD 2000).
- 61 Western understanding of the Russian sailing navy has expanded significantly since the publication of John Tredrea and Eduard Sozaev, *Russian Warships in the Age of Sail 1696–1860* (Barnsley & Annapolis, MD 2010). Figures and judgments quoted in this section are largely based on this work.
- 62 Daniel G Harris, *F H Chapman the first naval architect and his work* (London 1989).
- 63 This section is based on the author's essay 'The United States Navy in 1812' in R Gardiner (ed), *The Naval War of 1812* (London & Annapolis, MD 1998).
- 64 *American State Papers. Class IV. Naval Affairs*, Vol 1 (Washington, DC 1854).
- 65 Howard Chapelle, *The History of the American Sailing Navy* (New York 1959).
- 66 The best modern study of US warships in this era is Donald L Canney, *Sailing Warships of the US Navy* (London & Annapolis, MD 2001).

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WAR has always been a great driver of technological advancement and two decades of a worldwide maritime conflict involving all the significant naval powers changed wooden ship design forever. Britain needed to keep the maximum number of ships at sea, under the most strenuous conditions, while simultaneously trying to economise on the maintenance effort and reduce the consumption of timber whose price was driven relentlessly upwards by wartime shortages. For the last ten years of the war the Dockyards struggled to find cheaper and more efficient structural techniques, until Sir Robert Seppings's 'trussed frame' system emerged as the answer. It completely restored weak ships, employed cheap (often reused) pieces of timber, and ultimately produced an improvement in structural strength that allowed a massive leap in ship-size. Seppings also improved the strength and resistance of the after end of ships with his revolutionary circular stern – as demonstrated in this divided model contrasting the traditional galleries of a three-decker (right) with his new design. After 1815 wooden warships looked – and were – radically different. (D4069–7)

The decorative chapter headings are details from the following draughts: P9 *Victory*

P14 *Princess Royal* (J1914)

P20 *Tonnant* (J2493)

P24 *Tremendous* (J3012)

P34 *Vigilant* (J3148)

P38 *Antelope* (J4021)
P43 *Andromache* (J5833)
P70 *Fly* (J7978)
P82 68pdr carronade (J8573)
P88 *Advice* (J1297)
P92 *Vesuvius* (J0393)
P102 Sailing lighter (J0385)
P110 *Proserpine* (J5575)
P127 *Monarca* (J3259)
P136 *Prince Frederick* (J3405)
P142 *Christian VII* (J2535)
P149 *Venus* (J3924)
P156 *Sealark* (J0871)