Warfare and History



SEAPOWER AND NAVAL WARFARE 1650–1830

Richard Harding

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For Anne, Rebecca and Hannah

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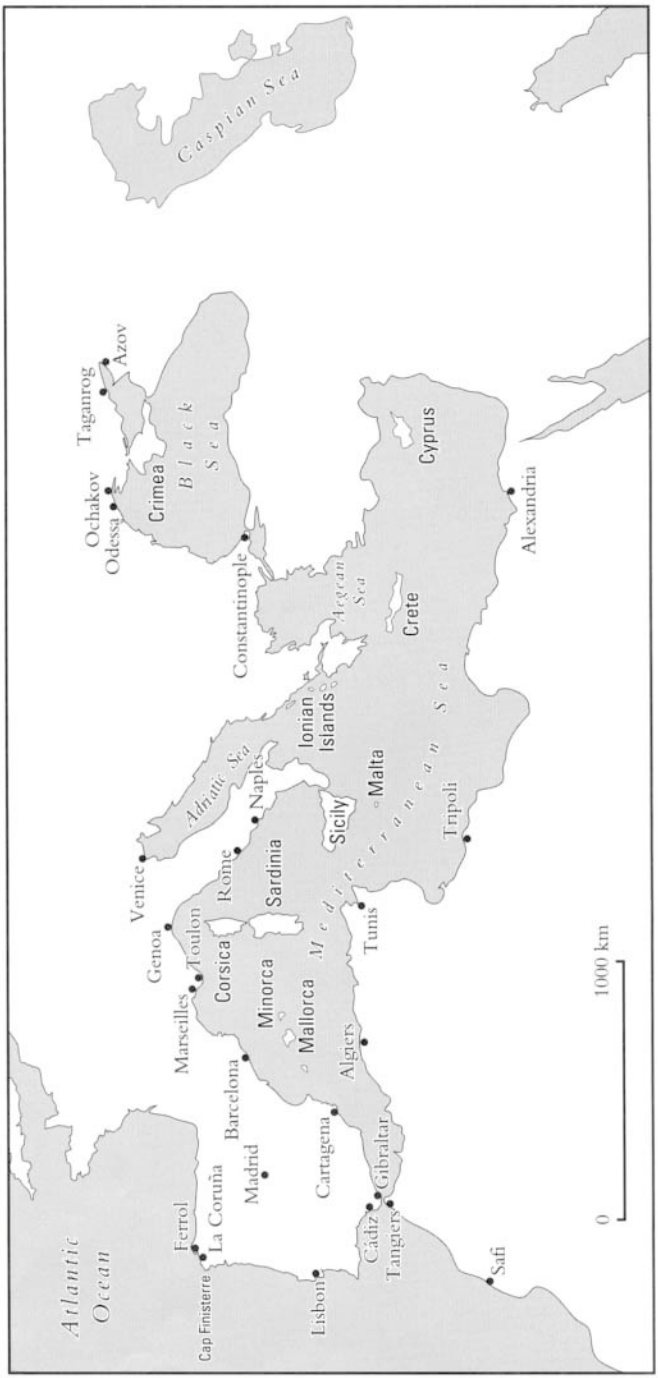
Maps

1. The Baltic region



2. The North Sea region





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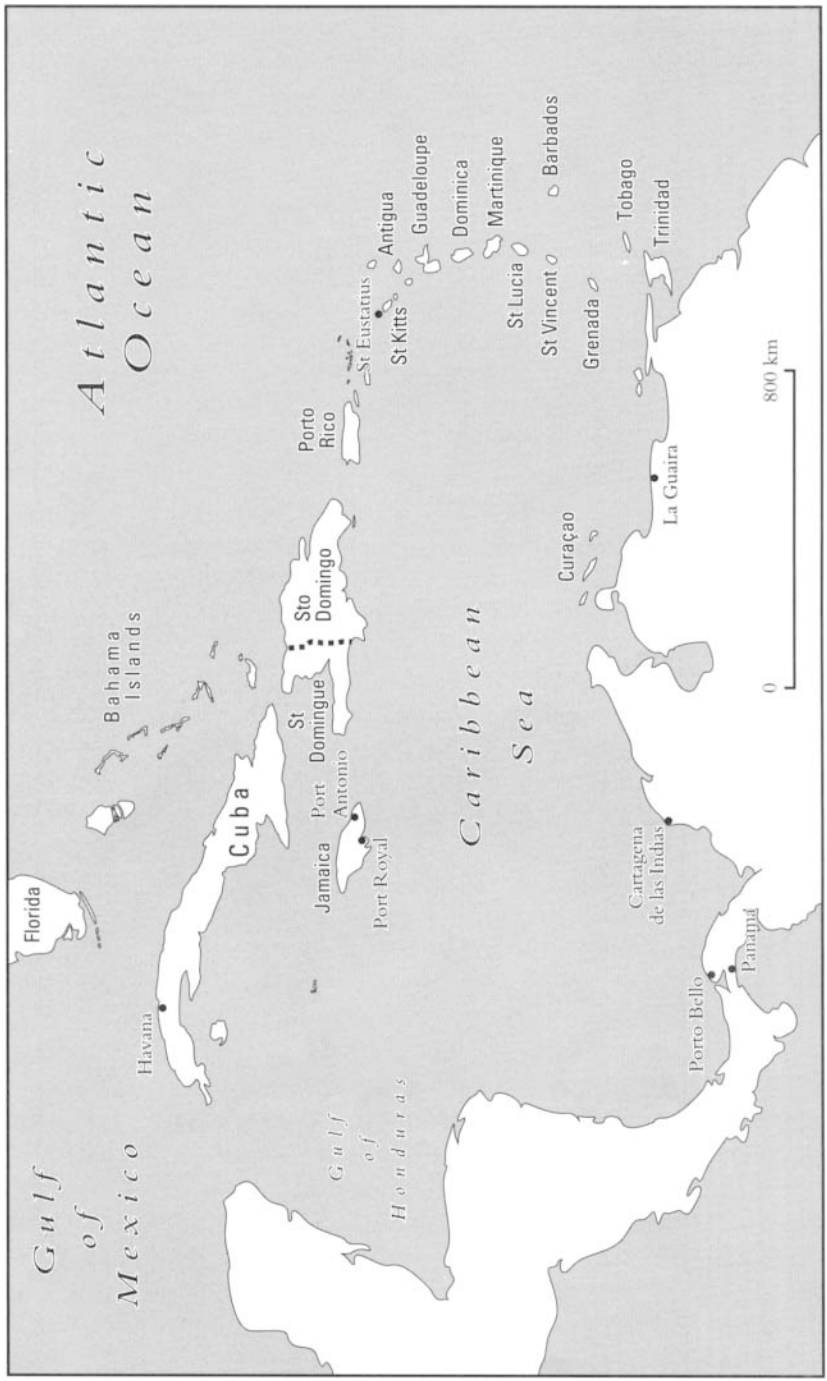
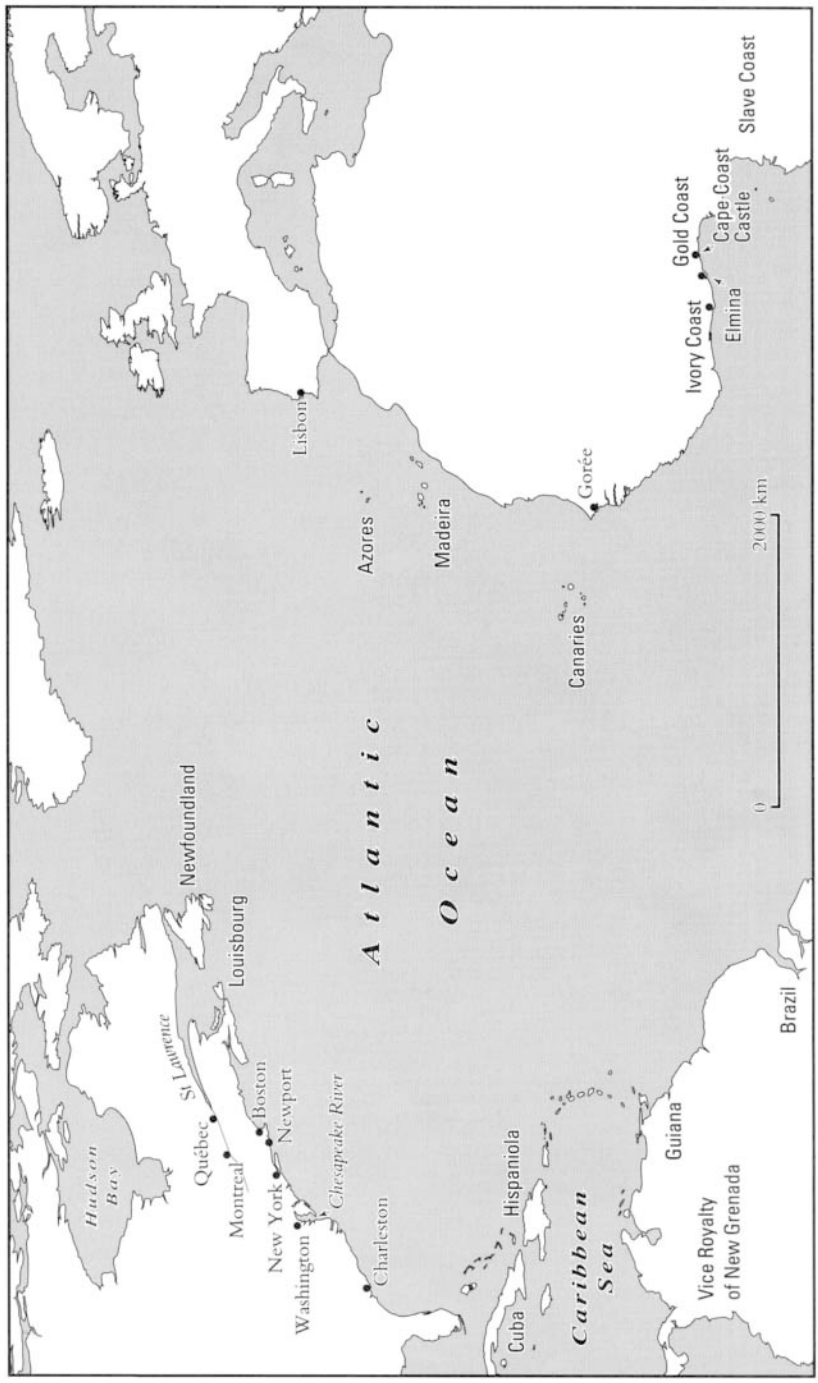


4. The Caribbean



5. The North Atlantic region

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Preface

Seapower in global military affairs has a long and well documented history. Today, for most people, seapower is synonymous with navies, and particularly the technological sophistication of the nuclear-powered submarine and aircraft carrier. The ability of these vessels to patrol the world's oceans and project their fearsome weaponry to land and sea targets, large or small, is the basis of contemporary seapower strategy. To earlier generations, the central role was carried out by the battleship, whose strategic function was a little different. At the turn of the century, the battleship was perceived as the weapon that drove rival forces from the sea, crippled an enemy's seaborne commerce and destroyed its resistance by "noiseless, steady, exhausting pressure". The battleship's power to project military force beyond the coast was limited and its ability to dominate battle at sea was the focus of attention. In the drive to convince politicians and the tax-paying public of the importance of this role the history of the battleship and the battlefleet was presented as a vital unchanging principle from the wooden sailing ships of the line to the steel and steam giants of the modern navies.

Over the last 50 years, historians have examined many other aspects of seapower in the period of the sailing navy–its purpose, the economic and political factors in societies that depended on seapower, the forces that exercised it and its impact upon various societies. Their work has not always formed part of an explicitly "naval" history, and the histories of the sailing navies themselves no longer command the attention that they used to. This work is an attempt to re-examine the idea of seapower during the period of the sailing battlefleets, to present a picture of how the battleship fitted into the overall exercise of seapower and how the relationship evolved between 1650 and 1830 to the point when the battlefleet could be seen as the ultimate expression of a global force.

It is hoped that readers will be interested to follow up the issues discussed in this work. The bibliography and notes are not intended to be comprehensive, but to provide accessible additional reading. Foreign language publications, manuscripts and unpublished papers have only been cited where accessible published works in English are unavailable or to alert readers to debates that are relatively new and will shortly be reaching publication.

Up to 1752, Britain used the Julian calendar, which most of Europe ceased using after 1582. English dates were ten days behind Europe in the seventeenth century and 11 days after 1700. The New Year commenced on 25 March in England. For this work, the new year is always deemed to have started on 1 January, but dates are indicated as either "old style" (o.s.) or "new style" (n.s.) in the text.

The opportunity to write on such a broad topic is an uncommon privilege and I owe a great debt to Professor Jeremy Black both for his advice and accepting the proposal. Progress would have been impossible without the generous help of other historians. Professor Geoffrey Till, Professor Craig Symonds, Mr Evan Davies, Commander A. J. W. Wilson, Mr J. D. Brown and Ms Ann Coats gave up their time to discuss aspects of the work with me. Professor Black, Professor John Hattendorf, Dr Andrew Lambert, Dr Eric Grove, Dr Peter Le Fevre, Dr Jan Glete, Lieutenant Commander W. J. R. Gardner and Ms Patricia Crimmin gave me invaluable advice on drafts. Dr Glete, Dr Lambert, Dr Le Fevre, Professor Hattendorf and Professor Elena Frangakis-Syrett gave me access to important published and unpublished materials. I am particularly grateful to Jan Glete, for his advice and permission to use the figures published in his *Navies and nations*. I am also grateful to my father, James Harding, for advice on the maps. The opinions, omissions and errors that remain are my own and it is clear that many important and exciting questions about seapower in this period remain to be answered.

Chapter One

"The age of sail" and naval history

The sea is the great barrier between land masses and, at the same time, the great highway of communication, open to anyone who can traverse it. Long before 1650 the world's oceans and seas were being crossed by merchant vessels of many countries. States fought each other on the seas and used power at sea to pressure their enemies on land. However, it was in the two hundred years after 1650 that maritime affairs intruded deeply into the development of the world. By 1830 the sea was far less of a barrier than it had been in 1650. The technology of shipping, the science of navigation, the infrastructure of ports, systems for provisioning, financing and supply enabled people and goods to travel faster, further and safer than ever before. The volume and variety of world trade increased dramatically. The coastal regions of most parts of the world became familiar with trading vessels from far afield, and maritime communities based upon a cash economy had an unprecedented political, social and economic impact upon the agrarian hinterlands.

From classical times urban economies and civilization depended on maritime commerce. The technological and financial requirements of shipping were a primary force in the cultural evolution of Europe. After 1830 the new industrial factory systems in Europe and America relied heavily upon seaborne commerce for raw materials and markets, but catered for increasingly integrated continental markets.[1] Maritime industries continued to be at the forefront of technological change, but other developments such as machine tools, the telegraph and railways were the technological wonders of the age. By 1900, the railways had opened up the continental land masses for the transport of bulk goods and people. Trade overland had become cheaper and more efficient in Europe, America and to a much lesser degree Africa. From the mid-nineteenth century,

the economic and cultural impulses of the maritime world merged with those of the new factory systems.

The mid-nineteenth century was also the time when political attention swung from a maritime and world-wide to a continental focus. In both America and Europe, the opening up of the continent was not just an economic phenomenon, but a political and cultural one as well. The territorial definition of states created wars of independence, unification, expansion and secession which dominated the period 1815 to 1870. With these wars came a focus on the factors that created a national unity between the peoples that occupied a given territory. For statesmen and nationalists domestic nation-building took priority over maritime expansion.[2]

Some states, usually smaller states on the perimeters of the great land masses, stood outside these general mid-nineteenth century political changes. The Netherlands, Sweden, Norway and, most significantly, the United Kingdom, all had strong maritime traditions and were less driven by the need to define their position within the continent. Britain, particularly, defined itself with reference to its global maritime empire. The European wars of unification only served to reinforce Britain's global, rather than European, perspective. By the 1890s, Britain saw itself and was also seen by other states as the model of the modern thassalocracy.[3]

Britain's distinctive position is important to the modern writing of naval history. During the early 1880s political and diplomatic attention in Europe and America focused once again on the wider world. With European boundaries confirmed, and intense economic rivalry between states, imperial expansion overseas offered an attractive solution to growing political problems. It was during this period and the years leading up to the First World War that the modern study of naval history took shape. Underpinning the national competition of the late nineteenth century was a deep quasi-Darwinian assumption that the nations were engaged in a deadly struggle for survival. It was a struggle that demanded the energies of the whole nation, including its financial, industrial and intellectual capital. In Britain, despite strong liberal traditions, the importance of applying higher education to the needs of the state was not missed. Norman Lockyer, the President of the British Association for the Advancement of Science, noted in his 1903 address to the Association that "University competition between states is now as potent as competition in building battleships".[4] Not just the physical and applied sciences, but history as well developed as a vital, serious study across Europe and America. Britain was the dominant naval and imperial power and it was her history that provided the focus for much of the new writing at the end of the nineteenth century. By 1914 the

"British" perspective in naval writings had thoroughly eclipsed other valuable and interesting perspectives of European naval theorists and historians.[5]

The background to this increased interest in naval history was the technical and organizational changes in warfare from the 1860s. Mass mobilization of armies and new materials contributed to spectacular and rapid victories for Prussia against Austria and France in 1866 and 1870–1, but the same factors produced a long and bloody civil war in America between 1861 and 1865. The lessons learned from these conflicts were that victory went to the power best able to produce and organize materials and manpower for war. Industrial capacity and the organizational power of nineteenth-century bureaucracy imposed the need for administrative and strategic skills upon officers which far exceeded those of only a generation earlier. On land, the changes in the technology of war itself were less dramatic than those in industry and government. Although artillery became ever more powerful and plentiful on the battlefield, and small arms more efficient and effective, the horse and human power remained the principal means of movement and combat still took place at close quarters. However, the experience of war provided plenty of information and some clues towards the education of army officers. It also confirmed that the traditional battlefield role of the officer was largely unchanged. It seemed possible to develop the professional education of the army officer with some degree of certainty. Naval officers faced much greater ambiguity. Unlike their army colleagues, there had been no recent intensive naval campaigns. The last naval battle of any scale had been at Lissa in 1866, between Austrian and Italian naval units. It had no significant impact on the outcome of the Austro-Prussian War. Anglo-French naval domination was a major element in the Russian War (1854–6), but, subsequently, became overshadowed in popular imagination by the land campaign in the Crimea. The American Civil War (1861–5) at sea was equally one-sided. The Confederate States Navy hardly existed and although a handful of commerce raiders on the high seas created a major impact on the public, the United States Navy effectively blockaded the Southern States without having to overcome a substantial enemy at sea.[6] If anything, these limited operations had created greater ambiguity for officers interested in the future of naval warfare. The tactic of ramming the opposing vessels, employed by Rear Admiral von Tegetthof at Lissa, had an influence on ship design that ran counter to the improvements in artillery. The success of the Confederate commerce raiders and the apparent inability of oceanic battlefleets in the Baltic to influence the course of the Crimean War raised questions about the relative effectiveness of high seas battlefleets, coastal bombardment fleets and a privateering war against commerce–the *guerre de course*.[7]

Underpinning this problem were the remarkable changes in the technology of war at sea during the last half of the century. Steam power, which was used aboard warships from the 1840s was becoming increasingly efficient. The triple expansion steam engine, the screw propeller and, a little later, the turbine transformed the ability of warships to manoeuvre, travel at speed and keep at sea in hostile conditions. While steam freed the warship from the constraints of the wind, iron and later steel plate completely transformed warship design. The size of warships, their configuration and their capabilities are determined by the materials from which they are constructed. In the early years of the nineteenth century, ship designers and constructors reached the limits of wood as a material. Vessels could not be made larger or increase their carrying capacity. Iron construction in the form of cast parts assisted improvements during the 1830s, but it was the strength and flexibility of steel which from the 1880s enabled shipbuilders to increase the size and capacity of vessels beyond all previous experience.[8]

By the 1840s improved smooth-bore artillery and shell guns gave warships greater firepower than their predecessors. Rifled artillery and chemical propellants and bursting charges increased the range and destructive power of gunfire from the 1860s. These new heavy artillery pieces were restricted on land by the need to haul them by horse power over poor roads and keep them supplied with ammunition by the same means. At sea these weapons could be housed in turrets, manipulated and served by hydraulic and electric power and supplied by extensive magazines. Ships, which from the sixteenth century had become floating artillery platforms, became even more formidable weapons against land and sea targets. During the nineteenth century, naval gunfire achieved a concentration and power that land-based defences might be able to resist but few were able to counter. New weapons added to the changing environment of naval warfare. The torpedo and the mine extended the potential danger to vessels of attack from under the sea.[9]

These technological changes raised significant questions about how naval wars would be fought and what the naval officer needed to be taught. The need to understand the technical principles of the weapons and propulsion systems led to a major and controversial change in the education of Royal Navy midshipmen announced in 1902. The curriculum and pedagogy remained a matter of dispute in succeeding years. For senior officers, the tension between a curriculum that kept them up to date with the latest technical developments and the need to develop them as strategic thinkers was never resolved.[10]

While the services were extending and re-examining the education of their officers, history was becoming more distinct as an academic discipline. Although there were

relatively few professional historians, history was developing and growing in popularity. History has always had a place in a liberal education, but it was seldom distinguished from literary, philosophical or legal studies. The research-based approach to history, which dominated German and later American history schools by the beginning of the twentieth century, provided it with a distinctly "scientific" structure.[11] Science was not seen as a discipline or department of knowledge, but "the proper method of knowing and apprehending the facts in any department whatever".[12] In France, Germany, Britain and the United States ambitious historical studies based upon primary source materials were in vogue. State and public archives were being systematically catalogued and opened up to historians. Collections were being preserved and published. Implicit within the scientific method was the belief that the knowledge discovered was useful and would contribute to improvement. The questions asked by historians were, therefore, essentially those upon which improvement was sought. The method was a training of the mind that was useful for those in public service–lawyers, administrators, statesmen, naval and military officers. The content was vital background information for those very same people. It is no surprise, therefore, that armies and navies were at the forefront of the scientific study of history. History was seen as "the most effective means of teaching war during peace" and of bringing into relief "the unchangeable fundamentals of good generalship in their relation to changeable tactical forms".[13] More than anything else a proper study of history distinguished between cause and effect and developed the greatest attribute of any officer–judgement.

The armed services' need to involve themselves in the study of history clearly stemmed from the increasingly complex operational and political demands of contemporary warfare. However, neither the content nor methodologies of historical studies were ever as firmly established in the serving officers' minds as the naval historians would have liked. Professor Sir John Laughton was a first-rate scholar who was committed to extensive primary research to educate the navy, but Captain Herbert Richmond, one of the Royal Navy's most distinguished historians, was disgusted by the ignorance of his colleagues. On 4 April 1907 he wrote in his diary "I know only too well how ignorant we are, not only of modern war, but even of wars in history." He recorded his despair that Admiral Durnford had never heard of Nelson's Nile Campaign of 1798, and worse: "that was typical of ninety percent of our admirals."[14] The first professor of history (and English) at the Royal Naval College, Greenwich, Professor Sir Geoffrey Callander, was by no means a distinguished scholar and the navy did not seem to regret that fact. Since then the Royal Navy and the Royal Naval Colleges have produced some of the foremost naval historians, but to focus upon them would be to ignore the vast majority of officers for

whom history was simply part of a curriculum that had to be tolerated. Likewise in America, although the founder of the Naval War College, Admiral Stephen Luce, saw history as the keystone in the study of war, its role rapidly diminished. The post of professor of naval history at the US Naval War College was abolished in 1894 and not reinstated till after the First World War. The principal use of history was to provide the data for case studies and simulations used by officers studying tactics or strategy. Original research and wide-ranging explorations of historical situations were considered unnecessary.[15]

Over the period 1870 to 1914 naval history had become an established part of the intellectual development of the naval officer in Europe and America. The sources of the data were identified, the methodology of disseminating the information and extracting the lessons were established and the means of publishing it were developed. The staff histories and the research were not abstract historical investigations, but attempts to provide sound data from which to extrapolate lessons for future naval wars. More than anyone else, it was the American, Captain Alfred Thayer Mahan, who established the dominant lessons to be drawn from those historical studies.[16] Mahan's views were not unique, but his *Influence of sea power upon history*, published in 1890, had the greatest impact upon the public, politicians and statesmen. Mahan was convinced that the guiding principle of sea warfare was the concentration of overwhelming firepower upon the enemy to drive him from the sea. Thus, the battlefleet of capital ships was the only way to ensure control of the sea. For Mahan the British Royal Navy had proved this thesis and his purpose in writing *Influence* was to demonstrate this historical example and the "principal considerations" upon which British seapower was built.[17]

The idea struck a chord in political and naval circles throughout the world, and although, as Barry Gough has pointed out, few of these people may have read beyond the first part of the book, the focus on the domination of the oceanic battlefleet became the historical orthodoxy for the public. In France, where the possibility of competing in a naval race with Britain after the disastrous war of 1870–1 was unlikely, Admiral Aube headed a powerful group of naval thinkers, the Jeune École, who looked to the new weapons of torpedo and fast light cruisers to deny the use of the sea to the enemy. Although they had influence in Europe between 1885 and 1895, Mahan's battlefleet theory of naval war had swept these ideas away by 1898.[18]

Subsequent historical investigations used established methodology and sources to fill chronological gaps, and fitted the narratives into Mahan's analysis of seapower. Whether Mahan was right or wrong in his predictions about future naval warfare, his views about the history of the sailing navy were unchallenged. So far as the naval

profession was concerned, history had done its job and established a permanent but limited role for itself in the professional curriculum. Since 1900 history has had to accommodate itself to other disciplines which could also throw light upon the future performance of navies in combat. Administration and management studies taken from the business world were absorbed into the military curriculum before and after the First World War. Psychology and leadership studies, international relations, economics and political sciences have taken an increasing share of study time since 1945. History, particularly that of the sailing navies, which was so prominent one hundred years ago, can still be found in the curriculum of naval colleges, but more for the continuity it demonstrates with the past–what Sir Julian Corbett called "a means of mental and literary culture"–than for the insights it provides to the modern professional navy.[19]

The naval history of the sailing ship era has, therefore, emerged as an identifiable subject, shaped like most disciplines, by the pragmatic requirements of its practitioners between 1870 and 1914. Its primary focus was the contemporary application of naval power. The battlefleet and the naval battle were at the centre of this power and the causes of success and failure in battle were the crucial factors to understand. The narrative was the narrative of campaigns and the reasons for particular outcomes were deduced by going backwards from the battles. By the time the First World War broke out in 1914, the period of the sailing navies had received almost 30 years of detailed attention from scholars, who produced some first-rate campaign histories and excellent collections of printed documents.

After the First World War, naval history and historians were drawn into the debates about the lessons to be learned from that conflict. The general disappointment that the overwhelming naval power of the allies in all waters had not produced a decisive result, or indeed a decisive naval battle, led to a re-examination of the doctrine derived from the historical writing of Mahan. The role of commerce raiding and amphibious operations had been tackled before 1914 and these aspects of seapower are more prominent in works after 1918, but the Mahanian emphasis on the battleship and battlefleet remained largely intact.[20]

Prior to 1919, the history departments of universities had played a prominent role in the development of naval history. History as a discipline in its own right was developing rapidly at the end of the nineteenth century. Military history, including naval history, was a part of this. Academic historians like Sir John Seeley, S. R. Gardiner, J. A. Froude and Charles Oman contributed to the narrative campaign histories and to the analytical studies of military, sea and imperial power. By 1904, military history courses existed at Oxford and King's College, London. In 1909 the Chichele chair of

military history was established at Oxford. There was a fruitful influx of expertise to strengthen the study in the years before 1914–in 1885 John Knox Laughton became Professor of Modern History at King's College London and Henry Spencer Wilkinson, the journalist and expert on German military development, was the first holder of the Chichele chair.[21]

Interest in naval history tailed off after the First World War. The first postgraduate theses in naval history appeared, but numbers of students for the course at Oxford dwindled into single figures. The Laughton Lecture at King's College, London, which was intended as an annual memorial to Sir John Knox Laughton who died in September 1915, was delivered only once, by Sir Julian Corbett on 4 October 1916. The plans for a Laughton Library were quietly forgotten.[22]

However, perhaps the most significant contribution of the universities to the naval history of 1650–1830, did not lie in the detailed narrative histories but in the expansion of studies on the economic and social context of the maritime world. The long stalemate on land and at sea in the Great War and the apparent success of the blockade of Germany was a theme developed by John Holland Rose, the Vere Harmsworth Professor of Naval History (1919–33) at Cambridge, and by Cyril Fayle who lectured at the Imperial Defence College. Richard Pares at Edinburgh, Gerald Graham at London and Cyril Northcote Parkinson at Liverpool began their studies into the relationship between navies and economic connections in the West Indies, North America and the Far East.[23] In America this interest was reflected in the studies of American political and colonial relationships with Great Britain rather than the military histories.[24] Likewise, in France, studies of colonial relationships added to our understanding of the maritime dimension of French life.[25] By the time war broke out again in 1939, the volume of printed source materials had grown substantial. Some new narrative histories had emerged–often with origins in research done before the First World War–but most significantly, the study of naval history 1650–1830 had been given an added dimension with some first-rate economic and political studies, which put naval history much more into contemporary social fabric.

In the world after 1945, the naval history of the period 1650–1830 has undergone further change. The major seats of learning for naval history, the senior officers' colleges and the universities, have both experienced changes in their curriculum. The purpose of studying history in the navy has always been for the insights it might provide in leadership, strategy and tactics. To a large extent the histories of the sailing navy period had exhausted their usefulness by 1914. The technological changes between 1939 and 1945 had diminished their relevance even further. Although there remained some

important contributions to the theory and practice of seapower based upon historical comparison, particularly by Stephen Roskill and Peter Gretton, history retained a very limited functional role in the training of junior officers.[26] In Britain, in 1987, there was a brief flutter of controversy when naval history appeared to be in danger of disappearing completely from the curriculum at the Royal Naval College, Dartmouth. However, it survives, as an eight-week narrative survey in the Defence Studies course, covering 1890–1990, to complement similar courses on international history and politics. In the United States Naval Academy, which has a very different educational history and mission, the history curriculum is very diverse, but the modern navy is a highly technical service and there are restrictions on the number of midshipmen who can major in the subject.

It has always been in the senior officers' colleges that history has had a real role to play. These colleges lost a great deal of their intellectual energy in the period following the First World War and for some decades after 1945 little emerged from them. However, during the 1970s and 1980s the mood changed. In Britain the withdrawal from empire had been effected and there was a need to clarify the role of the Royal Navy, as a medium sized force, in the Western defensive system.[27] The end of the Vietnam War in 1973 stimulated similar thinking in the United States. More recently, the end of the Cold War has forced even more intense reflection about what navies do and cost.[28] Naval history has played an important part in this reappraisal of naval doctrine. Inevitably, the focus has been on recent history, particularly post 1939. However, in the United States Naval War College, earlier history is still making a valid contribution to thought.[29] The reasons for this range from the need to re-establish detailed historical debate about the role of navies in a context that would not be tainted by the divisive Vietnam War, to the central role Mahan himself had played in the Naval War College, to the broad expertise and vision of the Professor of History, John Hattendorf. The reappraisal of seapower in recent studies almost all use the comparative history method employed by Mahan. This is seen most clearly in the works of Clark Reynolds, Colin Gray and John Hattendorf.[30] In these studies, the problems faced by the sailing navies are presented as part of a continuous struggle with the strategic problems and possibilities of the sea. The reappraisal of US naval policy in 1992 has added some force to the possible use of history for insights into the new maritime situation. Since 1990, the Naval War College has been the focus of major efforts to reappraise the role of naval history in the higher education curriculum.

The universities have also undergone changes. The expansion of higher education has been accompanied by dissolving barriers between traditional academic disciplines. Students have far greater freedom to mix subjects and disciplines within their awards.

Whatever the negative effects of this might be, it forms a background to new awards and courses that draw upon different disciplines, such as war studies, conflict studies, labour studies, local history and oral history. Within each of these naval history can play a part, contributing to and being enriched by other disciplines, theoretical approaches and methodologies. Naval history forms an important part of studies which are now providing a much wider understanding of the historical relationship between Europe and the rest of the world.[31] Whereas it is unlikely that naval history, particularly of the period 1650–1830, will again see the light of day as a subject for informing and educating sailors, soldiers, diplomats and politicians, it is quite likely that it will survive as part of a wide range of studies and reinforce an already strong demand for books and information on sailing navies that exists among the general public.

The problem may be that naval history loses any coherent identity in the process and this concern has already stimulated naval historians around the world to debate the matter.[32] The most significant feature of the current state of the history of the sailing navies is that some themes are deeply entrenched in our understanding of naval warfare. These are usually the themes that were of major concern to the historians of the early twentieth century. The British naval experience particularly, the strategic dominance of the oceanic battlefleet, the development of fighting tactics at sea and the role of the great naval leaders have a long historiography. The conclusions drawn from these studies are well-known. More recently, naval administration, the evolution of the warship and the sailing ship more generally have received a great deal of attention. Other aspects of seventeenth- and eighteenth-century navies are less well-known or researched. The processes of command, the workings of allies at sea and inter-service understandings in naval warfare are all areas in which more research is required or the results of that research need to be incorporated more fully into a general understanding of naval war. Equally, the role of naval warfare in the development of the early modern world is in need of exploration. There is now a case to suggest that too much emphasis has been placed upon the British experience in generalizing as to how monarchs and statesmen viewed their sailing navies. Research in diplomatic and economic history has opened up a number of questions about the conclusions made by historians at the end of the nineteenth century.

Today, the student of naval history has an extremely rich inheritance. A great deal is known about naval warfare. The archives of most maritime nations have vast collections of naval documents. Much more than armies, navies relied upon the organization of large quantities of materials and skilled craftsmen. They relied upon the maintenance of large-scale capital investments in the form of docks, storehouses and a variety of

manufacturing facilities. They relied upon effective investment and manpower planning. They required sophisticated design capability. They needed skilled seamen and officers. Most of all they required money. All these requirements necessitated the early development of effective and efficient administrators, who collected and preserved the documents that their activities produced. They have not always been carefully preserved. Decay and fire have wrought severe damage to some archives. Cataloguing is not always complete and in some archives access is difficult. It is hardly surprising that after one hundred years, these archives have not been exhausted by scholars. The chapters that follow are an attempt to present a history of seapower, particularly the role of the oceanic battlefleet, in the period 1650–1830 in the context of current research. It is hoped that the study will also encourage readers to look again at some of the traditional interpretations of naval history and research for themselves some of the issues now being raised.

Chapter Two

The changing maritime world

War at sea requires resources that are generated by maritime communities–skilled seamen, navigators, shipwrights, a variety of artisans who work in iron, hemp, canvas and wood, shipyards, and suppliers of raw materials and preserved foodstuffs. To exercise seapower a state must mobilize and organize these specialist resources. The history of seapower is very much the story of how states exerted that influence and how successful they were in achieving the ends expected of them.

To understand seapower, therefore, it is important to understand where the major maritime resources were, how they changed over time and how different states related to these resources. The major changes in the maritime world between 1650 and 1830 were not so much technological but in the scale and diversity of operations. Since the end of the fifteenth century, wealth had come across the seas from Africa, America and Asia, but Europe remained predominantly an agricultural economy with regional trading patterns. From the 1660s there was a major expansion in transoceanic shipping. The wealth generated from sugar, tobacco and other tropical produce grew disproportionately, stimulating investment in shipping and associated industries.

The figures given in Table 2.1[1] must be viewed with extreme caution. Tonnage was, broadly, a measure of the carrying capacity of a ship. Countries had different means of calculating this figure and the measures changed over the period.[2] Nevertheless, it is clear that there was a spectacular rise in Dutch and English shipping tonnage between 1660 and 1700. It was followed to an extent in France, North America and elsewhere. The growth before 1700 was not sustained in the first half of the eighteenth century, but accelerated again after 1750. By 1789, Britain, France, the United States and a number of lesser states all had significant merchant fleets. In 1650 long-distance shipping was largely in the hands of monopoly joint stock or regulated companies. By 1789,

Table 2.1 European merchant shipping tonnage (000s of tons)

Year	Dutch	England	Germany	France	Spain/ Portugal	Italy	Venice	Genoa	Denmark/ Sweden
1600	240								
1603		60							
1629		115							
1636	500								
1670	600	94	104	80					
1676	900	500		100					
1686		340							
1700	500								
1702		320							
1750	500								
1761		460							
1775		700							
1786		752							
1787	398	882	155	729	234	312	60	42	555
1788		1,055							
1790		1,290							
1800		1,856							

Source: R. W. Unger, "The tonnage of Europe's merchant fleets, 1300–1800", *American Neptune*, lii (1992), pp. 260–1. The blanks indicate that figures are not available.

there was a mass of smaller private companies that traded throughout the world. The expansion of trade across the Atlantic and into the Indian Ocean intensified rivalries and raised the stakes in conflict. Between 1650 and 1815, war at sea became gradually more intense as the opportunities for war and reasons for it expanded.

The North Sea

In many ways the North Sea was the focal point of the European maritime world in 1650. It was the narrow seaway which linked the two complementary maritime markets of the Baltic and the Mediterranean. In the fifteenth and sixteenth centuries, grain from Poland and herring from the Skanor and Rügen fisheries were vital foodstuffs needed by the populations of southern Europe. Timber from Norway and hemp, tar and pitch from Riga and Königsberg were important building materials. These bulky goods could be carried overland but at costs far higher than the sea route. Grain brought by sea

from Danzig to Venice was only 25 per cent the cost of grain brought overland.[3] Cloth, silver and especially salt for the herring industry were the main commodities sent northward.

The Dutch, occupying the eastern shores of the North Sea, were ideally placed to take advantage of this important seaway. The Dutch fishing industry was highly developed by the late Middle Ages. The *buis*, a capacious fishing vessel equipped with nets and curing facilities, dominated the Icelandic cod fishery. They had a thriving whaling industry, centred around the island of Spitzbergen. When the herring shoals began to move out of the Baltic into the waters off Norway between 1500 and 1550, Dutch fisherman were well equipped to exploit the opportunity.[4] The technical advantage of Dutch commerce was reinforced by the invention of the *fluyt* around 1590. These cargo vessels were both cheap to build and easy to sail. Their design was such that they also minimized the duties for which the merchants were liable. They were cheap to maintain and, consequently, safer and more reliable than other vessels on the trade routes in Northern Europe.[5]

Dutch advantage did not just lie in ship technology. The dunes and estuaries around the Zuider Zee were the centre of the wood trade. Wood brought from Norway was prepared in the yards for the European markets. The concentration of capital, mercantile experience, expertise in exploiting wind power, labour-saving devices and manipulating wood were easily transferred to the shipyards. By the early seventeenth century Dutch builders were able to produce vessels 40 to 50 per cent cheaper than it was possible in England.[6] From the 1630s the shipbuilding industry expanded dramatically along the banks of the Zaan river, just north of Amsterdam. There were 25 wharves along the river in 1650, and 60 by 1669. The yards produced the large cargo vessels and whalers for oceanic trades. The prosperity of the Zaan yards peaked in the first years of the eighteenth century, but as Amsterdam and Rotterdam took a greater share of the market, Dutch shipbuilders remained an important force throughout the period of the commercial wooden ship.[7]

The experience of the Dutch in European coasting trades also provided them with a network of merchants along the trade routes.[8] Amsterdam was ideally placed within a network of inland waterways to act as the distribution centre for northern Europe's inbound and outbound trade. It took English woollens and was the centre for Baltic goods. The city became the entrepôt for Asian spices brought back by the Portuguese Carreira da Índia and their own East India Company (Vereenigde Oostijndische Compagnie (VOC)). The capital market was highly developed, providing the silver

required to finance the Baltic trades. The city experienced enormous growth in the early seventeenth century, rising from a population of about 50,000 in 1600 to 200,000 by 1650.[9]

A further advantage enjoyed by the Dutch merchants was the unambiguous support of their governing body, the States General. The importance of trade was vital both for foodstuffs and to finance the war against Spain. The advantage of the *fluyt* was that it was lightly armed, allowing maximum space for cargo. This was only possible thanks to the States General organizing armed convoys, paid for by duties levied on the merchants. While other states remained weak at sea, this expression of maritime power by the Dutch was enough to preserve the bulk of its merchant marine from destruction by privateers and pirates. The longer-distance trades, to the Mediterranean, the West Indies and the East Indies, were organized by companies who, protected by monopoly profits, were responsible for arming their own vessels.[10]

By 1650, the Dutch could underprice and outperform any other merchant carrier for almost any trade in Europe. However, their pre-eminence was vulnerable. They depended on free access to the markets of Europe, the Americas and Asia. They also depended on free and peaceful navigation between these markets. Ultimately, they depended on their military and naval capacity to enforce this freedom of access and navigation. The doctrine of Mare Liberum was fundamental to Dutch prosperity, but during the next fifty years this capability was dramatically reduced by France and England in a series of wars. By 1713, the Dutch had to recognize that their military and naval security was dependent upon England or France. Their commercial advantage had diminished, but the Dutch merchant fleet still exceeded that of both England and France together. It was not until the 1750s that British shipping tonnage exceeded that of the United Provinces.[11]

Throughout the period 1650–1830, the United Provinces remained a highly sophisticated maritime economy. Its influence on maritime warfare was substantial because its position, bordering on the North Sea, was a threat to that commercial waterway and to England. It possessed a highly diverse and experienced maritime industry which, together with its vast world wide trading networks, made it an important factor in the evolution of war at sea.

On the other side of the North Sea stood another state whose impact on the evolution of naval warfare was to be considerable–England. The foundation of English maritime commerce was in bulky, low-value goods like cloth, fish and coal. All these trades required efficient bulk carriers. English ships also traded extensively in Mediterranean and American waters which required large vessels capable of defending

themselves in distant waters. England possessed a highly diverse maritime economy by 1650 and the significance of English competition could not be ignored by the Dutch. The coastal regions of England were alive with activity. In 1500 90 per cent of English trade had been concentrated in London. The growth of the Baltic, Mediterranean, African and American trades had stimulated growth in Hull, Southampton, Chester, Bristol and later Liverpool. The market for cloth in France and the Newfoundland cod fishery had created a major growth in the West Country shipping industry, while the Icelandic fishery expanded the east-coast fishing fleet. Cloth made up about 90 per cent of English exports as late as 1600, but by 1650 there had been a major growth in colonial produce. In the years that followed, the trade in colonial produce like tobacco, sugar, indigo and dyewoods was to expand greatly as England became a major entrepôt for the re-export trade to Europe. Some of the ships that plied the trade across the Atlantic were small vessels of less than 100 tons, but most of the ships were between 100 and 200 tons working to and from North America and around 200 tons for those ships engaged in the West Indies trades. In the last half of the eighteenth century the size of vessels in the Caribbean trades grew signficantly, reaching 400 tons.[12] Thus, these relatively high-value bulk trades created a fund of experience in maintaining large vessels over long distances. The value of these trades was recognized in Holland and England. While England and the United Provinces were united by a common religion and had been faced with a common threat from Catholic Spain, they were increasingly divided by their vital maritime interests.

Like the Dutch, the English government gave increasing support to its merchants. The English Commonwealth (1649–60) introduced the first of what was to be a complex series of legislation that was collectively known as the Navigation Laws.[13] These laws, which were not finally repealed until 1849, formed the legal and diplomatic basis of a sustained policy of vigorous government support of maritime commerce. Although England, like every other European country, was politically dominated by a landed aristocracy, the links between the political elite and maritime interests were so much more effective than her rivals. The consequence of political support and finance was to have an important impact over the period.

Given the significance of the North Sea to European sea-borne commerce and the importance of maritime trade to England and the United Provinces, this region became the focal point of naval conflict in the years after 1650. In 1650 neither country could exclude the other from its markets by commercial advantage, diplomacy or force. In both countries, the credit facilities provided by a thriving merchant community were vital to state finances. The expanding maritime communities of merchants, seafarers and

colonial entrepreneurs were integrated with the political elites so that their demands and welfare were of concern to their governments. In return, the strength and the diversity of these maritime economies made it possible for the governments to mobilize substantial resources for war at sea.

The Baltic

While the North Sea was one of the most highly contested waterways in the world in the 1650s, the Baltic was probably one of the most stable. From the 1530s, Danish and Swedish naval forces preserved peace between themselves and security for merchants.[14] From Riga and Königsberg came tar, hemp and timber for the building and shipbuilding industries. Throughout the period of the sailing navies, these naval stores were to play an important part in diplomacy and war. Copper was an important industrial and military raw material mined in Sweden. Perhaps the most significant product was grain from the Polish estates along the Vistula, which were exported through Danzig. From the late fifteenth century, Amsterdam was the main entrepôt for Danzig grain, which fed western and southern Europe. The peak of this trade occurred in the 1630s, after which maize production in Portugal and Spain and rice farming in Italy reduced southern Europe's dependence on wheat. Small increases in wheat production in England and France also turned these countries from net importers to exporters of grain.[15]

While the grain trade declined, there remained a growing demand for copper and naval stores which required large tonnages of shipping. Baltic merchants were generally too poor to provide the investment needed for these bulk trades, particularly in the face of experienced Dutch competition. The Swedish crown, which controlled the coastal regions of the eastern Baltic, was willing to accept the domination by Dutch merchants so long as they paid the duties required to maintain the Swedish fleet. Likewise, the Danes profited from the passage of foreign ships which paid the Sound duties.[16] The Dutch were willing to pay all these duties in exchange for the protection of Danish and Swedish warships, which in turn reduced their overall costs.

While Danish and Swedish naval power was roughly balanced, commerce proceeded fairly peaceably, but by the second half of the seventeenth century, this balance was increasingly in doubt. In 1645 the prospect of Swedish domination of the entire Baltic prompted the United Provinces to send a squadron to the Sound. English and Dutch squadrons entered the Baltic to try to broker a balanced peace between Sweden and Denmark in 1658–9.[17] The emergence of Russia as a major power on the Baltic coast was

a significant result of the Great Northern War (1700–21). By 1711 Peter I had successfully ejected the Swedes from Estonia, Livonia and the Gulf of Riga. From 1715 to 1721 British and Dutch squadrons regularly cruised in the Baltic to protect trade and to influence the Swedish and Russian military fortunes.[18] With the conclusion of this war in 1721, the Baltic once again settled to a fairly stable balance of power. Russia controlled the eastern Baltic, Sweden the centre and Denmark the west, all content to let western merchants trade peacefully in exchange for duties. The Baltic ports were a trade terminus rather than an entrepôt. They did not require sophisticated financial and commercial processes for substantial deferred payments, re-export or exchange of goods. Payment was largely in silver and the profits of the trade in naval stores went predominantly to the landed nobles from whose estates the materials were extracted. Despite an expansion in Swedish merchant shipping, foreign vessels retained a major share of the carrying trades in the Baltic throughout the eighteenth century.

The Mediterranean

At the other end of the traditional north–south European maritime trade route lay the Mediterranean. Conditions here were very different from the Baltic. The Mediterranean had a very sophisticated and diverse maritime economy. There were trades in high-volume, low-value foodstuffs such a grain, fish, salt, dried grapes and oil. There was the trade in cloth, leather and glass, copper and alum. From the eastern Mediterranean there was the high-value silk and spice trade. All these trades were conducted both regionally and with Northern Europe.

Whereas trade in the Baltic had been facilitated by the security imposed by Danish and Swedish naval power, there was a general lack of security in the Mediterranean trades. While the local trades were still carried in small local vessels, the long distance trades were carried by the large well-armed English, Dutch and French sailing ships. There were no powers that could control or regulate the activities of these nations in the same way as in the Baltic. In the western Mediterranean, Spanish maritime resources had been greatly weakened by the Thirty Years War. French trade at Marseilles recovered quickly from the war with Spain and the civil wars. Louis XIV's galley and sailing navies were the most powerful regional force, but were never strong enough to dominate the region.[19] To the south the Barbary states of North Africa, Algiers, Tripoli and Morocco, posed a constant threat to merchantmen, but lacked strength to dominate the trade routes in the face of the well armed sailing ship. Venetian power, which had once been

so strong in the eastern Mediterranean, had long been drained in wars with the Turks. The Turks could rely upon a substantial local shipbuilding and sailing economy, but the galley technology in which the Mediterranean specialized, was inadequate to counter the armed merchantman. The galley could out-manoeuvre the sailing ship in calm waters, but could only mount a very small number of light cannon. The sailing ship, on the other hand, could mount many more cannon in batteries along the length of the vessel. Such firepower could usually prevent any attempt to board the less mobile sailing vessel. To the west the Barbary corsairs had recognized this and taken to using sailing ships rather than galleys to catch their prey from the first decade of the seventeenth century.[20]

After 1650 the Mediterranean was a commercial seaway whose very instability presented many opportunities to the competing maritime nations. The Mediterranean powers themselves were not among the leading competitors. This was less to do with the lack of investment funds or diversity of the economy as was the case in the Baltic, but more likely that the heavy investment required for sailing ships was relatively less attractive to merchants in the Mediterranean, where there was a strong local economy and where there were already well established colonies of English, French and Dutch merchants who could provide long-distance shipping and absorb the risk of transport in those dangerous seas. The most important single port was Smyrna (Izmir), the centre of the trade to the Ottoman Empire. Persian silks, Anatolian cottons and mohair were exchanged for European woollens. The English merchants dominated the Levant trade at the end of the seventeenth century and the safety of the valuable Smyrna convoys was an important part of English naval policy. Gradually, the growth of French commerce from Marseilles replaced the English and dominated the trade from the 1720s until 1789.[21]

The Eastern Atlantic coast: France

By 1650, the Atlantic coastline of Europe was the gateway to a wide array of opportunities. It had always been an important part of the routes between the Baltic and the Mediterranean. Out to the north, the Greenland whaling industry was well established. Trade down the coast of Africa was nearly two hundred years old by this time. Originally dominated by the Portuguese, this trade was beginning to attract Dutch, English and French interlopers. Out to the southwest, Spain's American empire had been the source of silver and gold to the Spanish crown. English, French and Dutch traders, settlers and pirates had become established in the West Indies and were on the verge of a major expansion of the plantation economies. To the north, settlements in North America

were becoming established. To these coasts, the valuable cargoes from the Far East were brought to Lisbon, Amsterdam and London. These long-distance trades were to become one of the main engines of naval warfare over the next two hundred years.

Like most other countries, the basis of the French Atlantic economy was fishing.[22] Along the Atlantic coast from Calais to Bayonne, local fishing was a mainstay of the economy. However, it was the Newfoundland cod fishery that provided a major step to the growth of French shipping. By the 1630s France had a well-established fishery on the Newfoundland Banks. In the eighty years of its existence, a great deal had been learned about the financing and organization of this long-distance bulk trade. There was an extensive network of merchant capital tied up in the fishing trade of western France. Rouen and Bordeaux merchants, where the fishing industry was centred, financed vessels from Le Havre, Nantes, Sables d'Olonne and, most importantly, St Malo. St Malo was the largest of all the fishing ports in the second half of the seventeenth century. Its trade was closely linked to other industries. The cod was taken to Marseilles for sale in the southern European markets in exchange for alum, essential for the preparation of cloth. These Norman textiles were in turn sold in Spain for silver, which financed trade in Baltic naval stores and Asian luxury items. The fishery continued to expand until 1688, when it was devastated by the war against England and the United Provinces. In the meantime, it provided a major stimulus to maritime growth, speading its wealth and the expertise of managing long-distance trade throughout most of the ports of western France (the Ponant).[23]

An important feature in the growth of the French maritime economy was the Dutch merchants who settled in western France. These merchants maintained a close communication with contacts in Northern Europe, sending salt, brandy and wines to the Baltic and establishing refining industries for the re-export of colonial produce. Their networks brought produce from America, the Far East and the Baltic to France, and they made France the centre of the colonial re-export trade for a brief period in the 1660s. During the 1670s the relationship was to change under pressure from the French crown, but it continued to thrive throughout the second half of the seven teenth century.[24]

Like other countries, the French crown was not indifferent to its overseas trade. The prosperous Protestant enclave of La Rochelle had been brought under control by Cardinal Richelieu in 1628, but it did revive with his plan to stimulate the growth of a loyal Catholic region. The crown and the church financed trade to Canada, investing in the Companie de la Nouvelle France (1627). Profit was not the primary motive, but as municipal revolts rocked rival centres like Caen and Rouen and Bordeaux, where royal

authority had not been so ruthlessly asserted culminating in the Frondes, trade gradually moved back to La Rochelle.[25]

The Dutch domination of the carrying trade frustrated the French crown as much as it did the English merchants. After 1660 French shipping began to grow quickly. The number of vessels in excess of 100 tons grew from 283 in 1664 to 671 in 1686, an increase of 240 per cent. Total tonnage may have risen 25 per cent between 1670 and 1676. It still remained at possibly less than 12 per cent of the total Dutch tonnage. Such an expansion was both the cause and the effect of a direct conflict between France and the United Provinces.[26]

During the second half of the seventeenth century, France established itself as the principal Atlantic fishing nation. This provided a large pool of skilled seamen, a sound commercial network of merchants to finance the industry, and a vigorous shipbuilding sector on the western seaboard. There were, therefore, strong interests in St Malo, Nantes, Rouen and La Rochelle, who would provide support for French naval activities. France's colonial trades were growing, but remained in the shadow of their Dutch competitors and partners, very much in the same way as the European coasting trade was dominated by the Dutch. Until 1660 Louis XIV was powerless to challenge Dutch hegemony, but with the return of peace, he was to turn his attentions to meeting them at sea.

The Eastern Atlantic coast: Spain

Spain held a particularly important place in the maritime economy of Europe. Silver from Spain's empire in America was a vital element in the international exchange mechanism of the early modern world. Between 1493 and 1800, 85 per cent of the world's silver came from America.[27] While an increasing percentage of silver remained in America, the net totals of silver imported into Europe and re-exported continued to expand throughout the period. In the Baltic, the Levant and the Far East, western European merchants could not sell enough goods to pay for the raw materials and luxury goods that were demanded at home. They had to make up the deficit with silver. All merchants had, therefore, to find access to Spanish silver. English, Dutch and French merchants competed vigorously to get access to the markets of metropolitan Spain or her empire. Spain tried desperately to control trade within the empire, but with diminishing success throughout the seventeenth century. Privileged access to Spanish markets, smuggling and other illicit trading became important factors in the maritime

relations of Spain to the rest of Europe. With the feeble Charles II (1665–1700) on the throne, the succession to the Spanish crown was a matter of even greater importance that disturbed the diplomatic pattern during the last quarter of the century.[28] The Bourbon succession brought a recovery of Spanish power, but the matter of access to Spain's silver surpluses remained an important feature of maritime affairs until the 1820s.

Spain's own maritime resources had been badly damaged by the long wars since 1621. In 1639, the effort of assembling the Armada against the Dutch had crippled the ports along the Biscayan coast.[29] The loss of Portugal in 1640 had deprived Spain of the vital skills and facilities that had supported the Armada del Mar Océano. The function of this squadron was to defend the coasts of Spain and to provide an escort for the treasure fleets coming and going to Central America. The treaty of commerce with the United Provinces, signed on 17 December 1650, was an important sign that Spain recognized its historic monopoly in American waters was unenforceable.[30] Spain continued to assert its monopoly, but with an increasing lack of credibility. Diplomatic concessions had to be made. The squadron based at Havana, the Armada del Barlovento, was inadequate to deal with the mass of interlopers and pirates that infested the Caribbean in the last quarter of the seventeenth century, let alone the increasing number of state-sponsored warships that entered those seas as the wars in Europe spread across the Atlantic.[31]

The other source of shipping strength to Spain were the ports of the Spanish Netherlands, particularly Dunkirk. Spain recovered Dunkirk in 1648. For a brief period between 1655 and 1657, Flanders privateers wrought havoc on English shipping as Cromwell's fleet of large warships proved incapable of catching the small, nimble Flemish ships. In 1658 English and French forces captured Dunkirk and, although Spain held on to Flanders until 1713, her ability to utilize the local frigate-built vessels for military purposes continued to decline.[32]

Spain's main source of wealth lay in the silver from South America–carried across the Atlantic by the Treasure fleets. The trade was a monopoly regulated by the Casa de Contratación at Seville. The Flota de Nueva España consisted of large two galleons, the *capitana* and the *almiranta*, which went with the trade to La Vera Cruz in Mexico. The *galeones* were a force of between five and eight warships that took merchandise to Cartagena (in modern Columbia). The *galeones* waited at this port until the silver mined at the great mountain of silver ore at Potosi (in modern Bolivia) had been brought by sea from Lima to Panama and then by the "royal road" to Porto Bello. The *galeones* sailed to Porto Bello for the fair. Both the *flota* and the *galeones* left the Caribbean, sailing before

the prevailing winds and currents via the Bermuda Passage, stopping to refresh and receive news at Havana. Intermittently, well armed merchant ships called *azorgues*, would make the passage to carry mercury to America, which was vital to refine the silver ore and to carry back silver belonging to the Crown. Individual ships, *registros*, were licensed to trade with the smaller markets of America. Seville had been well placed as the terminal of this valuable trade, being over forty miles up the Guadalquivir river, protected from English and Dutch raiders that infested the coasts. The silting up of the river made the passage more difficult from the 1680s and the trade increasingly used Cadiz as the terminal and in 1717 the Casa de Contratación moved there.[33]

Spain's position with regard to commerce with Spanish America was not good. The fleet system was inadequate for the growing demand for European produce in Spanish America. The legal monopoly made it difficult for Spanish merchants to participate in the trade, while the weakness of the Spanish crown could not prevent domestic corruption or foreign interlopers from undermining the monopoly. From the 1660s, diplomatic attempts to legitimize or channel this smuggling were an important part of Spain's relations with the other maritime nations. Meanwhile, Spain's own merchants outside of Anadulsia were largely excluded from the trade. Spanish merchant interest was thus channelled into short and medium distance trades in the Mediterranean and northern European coastal waters.

The galleons, upon which the safe passage of the treasure depended, were not strong. In 1618 an ordinance had limited them to 550 tons burden. This was large enough to deter most privateers or pirates and, in any case, the ordinance had largely been ignored. By 1678, in the light of experiences in the Anglo-Dutch Wars, the Casa de Contratación accepted that 800 to 1,000 ton vessels would serve the trade better. Although larger, the most recent historian of the galleons, Fernando Serrano Mangas, has concluded that they were not generally well built. They were a synthesis of warship and merchant vessel that was increasingly anachronistic as the century progressed, and although they developed to have three decks like warships, they were less well armed and more lightly constructed.[34]

However, the myth of the great Spanish galleon has continued in literature. The most famous exploits concerning a galleon occurred not in the Atlantic, but in the Pacific. Galleons were also used to take silver from Acapulco in Mexico to Manila in the Philippines, where it was used to trade for chinaware and silks. At the end of 1740, Commodore George Anson rounded Cape Horn in the *Centurion* (60) with a small squadron to disrupt Spanish trade in the Pacific and, if possible, capture one of the fabled galleons. On 20 June 1742, off Cape Espiritu Santo in the Philippines, a sail was spotted and the *Centurion* gave chase. The victim was the Manila galleon, *Nuestra Señora de*

Covadonga. After two hours, the galleon struck. Anson's account, published in 1748, described her as "much larger than the *Centurion*, had five hundred and fifty men and thirty-six guns mounted for action, besides twenty-eight pidreroes in her gunwale, quarters and tops, each of which carried a four pound ball".[35] In fact she was about 30 per cent smaller in burden than the *Centurion* and threw a much lighter weight of metal in her broadside–approximately 184lb to 435lb. Most of the people on board were passengers and the crew was inexperienced in naval battles.

In part, this belief in the power of the galleon was not just a folk tale transferred from the stories of the Armada, but could have been derived from knowledge that purpose-built Spanish warships were extremely powerful vessels. One of the most remarkable maritime achievements of the eighteenth century was the resurrection of the Spanish navy. In 1700 the Spanish navy had all but ceased to exist. After 1713 the Spanish crown put a great deal of effort into rebuilding its fleet and during the first forty years of the century new arsenals and yards were developed. The ships built in these yards had a reputation for durability.[36] Four years before news of Anson's capture of the *Nuestra Senora* arrived in London, the newsheets were full of a story that disturbed many. In April 1740, it had taken three British 70-gun ships to beat a Spanish "70", the *Princessa*.[37] Spanish shipbuilders were also at the forefront of testing the practical size limits of the wooden warship. They built some of the largest warships of the eighteenth century, including the famous 120-gun *Santissima Trinidad*. Completed at Havana in 1769, she went through four refits, ending up with four decks and mounting 136 guns. She was 220 feet long and 2,879 tons burden.[38] She was abandoned in a storm on 24 October 1805 after being badly damaged and captured by the British at the Battle of Trafalgar on 21 October. The *Victory*, Admiral Nelson's flagship at the battle, was by comparison a 100-gun vessel, 186 feet long and 2,142 tons burden.[39]

During the eighteenth century, the Spanish crown did try to reform the commercial system. Regulated companies were set up to trade directly with Honduras and Caracas (1714, 1728 and 1734). All these attempts failed because of the lack of investment and the vigorous opposition of the Dutch and British, who had become well-established in these markets. By 1729, the American market was overstocked with European produce and the goods brought by the 1731 *galeones* were still not sold by 1735. Even the disruption to Spain's trade with the empire during the war of 1739–48 did not ease the problem. *Registros* and foreign vessels had kept the market well supplied. The last of the *flotas* sailed in 1776, by which time Spain had to recognize that free trade was more likely to keep the empire stocked with goods than the fleet system.[40] Silver would still be brought back to Cadiz on Spanish ships, but the Spanish mercantile marine had not

developed to meet the potential demand. A flourishing shipbuilding industry existed at Havana for warships and the American trades. In Spain large vessels were built in the yards of the Basque coast and generally smaller vessels for the Mediterranean trades were built in Catalonia. The crown was remarkably successful in developing its *astilleros reales*, or royal shipyards, at Cartagena, Guarnizo and El Ferrol, but for the size of the empire and the naval challenges it faced, Spain's commercial maritime base was perilously small.

The Eastern Atlantic coast: Portugal

Portugal has a long history of maritime commerce. The Portuguese had "a true empire of the sea".[41] Portugal was more dependent upon seaborne commerce for food and wealth than any other European country. Portuguese ships had been trading down the west coast of Africa since the 1450s and it was Portuguese traders that had opened up the sea route to the Indian Ocean and Far East in the 1490s. From this a unique trade, the Carreira da Índia, emerged. From the 1490s to the mid-nineteenth century, large ships left Lisbon, sailing around the Cape of Good Hope to trade at Goa or the East Indies and returning by the same route. Lisbon was the centre of the spice trade. Fish was vital to the Portuguese diet, and Portuguese fishing vessels frequented the coasts of Africa, Iceland and North America. The Portuguese had begun sugar production on the Atlantic island of Madeira and by the 1670s the sugar trade between Brazil and Lisbon became the largest of all the transatlantic bulk products. It came to Lisbon in annual convoys organized by the Companhia geral do estado do Brasil. Lisbon was thus one of Europe's greatest entrepôts at the end of the seventeenth century, and was the centre of a complex trade network. To acquire gold in West Africa, the Portuguese traded in foodstuffs and livestock from East Africa. To produce sugar, slaves were purchased in Angola. The sugar was sent to Lisbon to finance trades in grain, hardware and hides. The sugar and spice trades financed the Far Eastern trades.[42]

These long-distance bulk trades had made the Portuguese experienced builders of the large ocean-going ships that had greatly reinforced the Spanish navy in the 1580s. Whereas most European ships were under 100 tons and the average for transatlantic trades might range up to 600 tons, the Portuguese had built carracks and galleons of between 1,500 and 2,000 tons. These large ships were relatively rare, and like the Spanish galleons, they were poorly armed by comparison with the emerging specialized warships of the 1650s. Despite an ordinance of 1604 which instructed owners to carry at least 28

great guns on their vessels, most carried about 20 light 8lb guns. In the eighteenth century galleons were more heavily armed but still vulnerable to enemy warships.[43]

By 1650, Portugal was once again an independent state, but its maritime empire had suffered in the Thirty Years War. The Dutch drove the Portuguese out of most of Guinea, they captured the Angolan slave trading stations, occupied northern Brazil and blockaded Goa. Angola was recovered in 1648 and Brazil in 1654, but growing competition from French and English plantations brought a fall in sugar prices in the 1670s.

Recovery came with the discovery of gold at Bahia in 1695. Gold production provided a stimulus to the slave trade and the local economy which peaked between 1741 and 1760. By 1730, Lisbon was again a major entrepôt. Political factors ensured that English merchants were quick to supply this market and by the early eighteenth century, two-thirds of Portuguese gold was being traded with English merchants, which played a major part in enabling England to weather the financial crisis created by the War of Spanish Succession (1701–13).[44]

The Portuguese economic recovery at the beginning of the eighteenth century did not stimulate the crown to invest heavily in a navy to protect its overseas possessions. Thriving shipbuilding industries at Goa, Bahia, Rio and Belém in Brazil which used teak and Brazilian hardwoods maintained a supply of high-quality vessels for the East India and Brazil trades. Some warships were constructed, but after reaching a peak in 1705, the Portuguese navy remained at a fairly constant 20 to 25 vessels until 1790.[45] The main threat to Portugal came from its land frontier with Spain rather than from seaborne raiders. The alliance with Great Britain and the United Provinces, which was signed in 1703, became the basis of Portuguese defence against Bourbon Spain and practically secured her possessions in South America and the Far East. In 1735, 1739, 1762 and 1776–7 when Portuguese–Spanish relations broke down, Britain prevented any major threat to Portuguese colonies and trade.[46]

Like Spain, Portugal did not possess the mercantile infrastructure to supply manufactured goods. The poor agricultural land and a sparsely spread population with almost no centres of domestic manufacture had been significant factors in turning Portugal towards the sea in the first instance. Sugar and then gold ensured that Lisbon would remain an important commercial centre until the end of the eighteenth century, but the demand in Brazil and at home created by this wealth far outstripped Portugal's ability to supply manufactured produce. Portuguese merchants could not compete with English, Dutch or French shippers and producers. The crown did try to direct this demand to domestic sources of supply by mercantilist policies during the 1670s, but

the gap between demand and supply was so great and the enforcement mechanisms so weak that they proved impossible to sustain.[47]

The Western Atlantic: the Caribbean

A major factor in the growth of shipping during the last quarter of the seventeenth century was the increased production of tobacco and sugar. The islands of the West Indies proved fertile soil for these products, particularly sugar. Sugar had been cultivated in Brazil since the 1550s and Lisbon was the natural entrepôt for nearly one hundred years. Dutch intervention transferred the European centre of the industry north to France and Holland in the middle years of the seventeenth century. Table 2.2 shows that after 1660 there was a dramatic expansion of the English West Indian sugar trade. As the average size of vessels in the trade remained fairly constant at between 150 and 200 tons burden until the middle of the eighteenth century, the trade provided a major boost to the quantity of shipping making the transatlantic run. The value of sugar imports into England continued to rise during the eighteenth century, but by the 1720s French competition had begun to drive English sugars out of Europe. The French Atlantic ports saw a major expansion in demand for shipping as sugar output from St Domingue doubled between 1730 and 1740. Professor John McNeill suggests that French Atlantic trade increased 600 per cent between 1713 and 1744.

Associated with the growth of the plantation economies was the growth of the slave trade. Slaves had been imported into Spanish and PortugueseAmerica since the sixteent

Table 2.2 Sugar imports into England

Pre-1640	Nil		
1663–69	7,400 tons		
1683	18,202 tons		143 ships
1699–1700	18,550 tons	+19%	
1701–10	18,902 tons	+3.8%	149 ships
1711–20	28,122 tons	+49%	221 ships
1721–30	38,512 tons	+37%	303 ships
1731–40	41,069 tons	+7%	323 ships

Sources: I. Steele, *The English Atlantic, 1675-1740* (Oxford, 1986), Table 2.4, p. 286; R. Davis, "English foreign trade, 1660–1700", in W. E. Minchinton (ed.), *The growth of English overseas trade in the seventeenth and eighteenth centuries* (London, 1969), p. 81.

century. The sugar plantations of the West Indies and the tobacco plantations of Virginia and Maryland stimulated demand further. Approximately 11 million slaves were taken from Africa to the New World during the life of the Atlantic slave trade. The overall profitability of this trade is still a matter of debate and the ships were not as large as once believed, but there can be little doubt that it provided a major stimulus to the specifically maritime economy. An average of 60,000 slaves a year were transported to the Americas between 1740 and 1810.[48] The trade was the subject of intense competition between chartered monopoly companies like the Royal African Company and unlicensed interlopers. It was a major source of diplomatic tension between the major transporters, the British, French, Dutch and, after 1815, the United States.

By 1650, most of the Caribbean islands had either been settled or rejected as uninhabitable. Spain had established strong colonial societies on some of the islands of the Greater Antilles such as Cuba, Santo Domingo and Jamaica. By 1656, an English army had driven them from Jamaica and French settlers had driven the Spaniards from the western half of Santo Domingo, establishing the French colony of St Domingue.

There were few Spanish settlements among the Lesser Antilles to the southeast. The prevailing currents and winds made entry to the Caribbean most attractive between these islands. They lay well to windward of the rest of the island chains and the Spanish Main. They were therefore a good spot to water, wood and refresh before continuing into the Caribbean. The Spaniards used Porto Rico as their landfall. They also held on to Trinidad, closer to the mainland port of Caracas. In the absence of strong Spanish settlement, English, French and Dutch settlers moved in during the century. English settlers occupied Barbados (1605), Bermuda (1620), St Kitts (1624), Nevis (1628), Antigua and Monserrat (1632), Bahamas (1646). The Dutch established themselves on St Eustatius (1632), Saba (1640) and St Martin (1648). The French arrived a little later, but established themselves with the English on St Kitts (1624), and founded important colonies on Martinique (1635) and Guadaloupe (1635).

The mainland of Spanish South and Central America from Caracas to La Vera Cruz was sparsely populated. The low coastal regions were hot, humid tropical forests. The great cities like Cartagena and La Vera Cruz and the ports such as Porto Bello and Chagres owed their existence to the treasure mined on the other side of the land mass. The land was not suited to plantation agriculture, although the forests contained valuable logwood and indigo used for dyes. The English established a logwood colony at Belize in Campechy Bay, but for the most part any attention that was given to this region was largely in the hope of interrupting the Spanish treasure routes. In 1698 a Scottish company, the Darien Company, was set up to try to establish a colony on the Darien

peninsula, well-sited to threaten the "royal road" from Panama to Porto Bello. Spanish reaction to this threat was decisive and without English help the infant colony had collapsed by 1702.[49] The English continued to have an interest in the "Moskito Shore" throughout the eighteenth century, but usually found little value in provoking Spanish hostility.[50]

Tobacco was the first bulk crop to be cultivated in the West Indies and Brazil, but was rapidly replaced during the 1660s by sugar which was less destructive to the soil. The plantations required massive amounts of local and oceanic shipping. Food had to be brought from the Northern Colonies. Jamaica, St Christopher and Curaçao and St Eustatius were the entrepôts for slaves to be sent on to Spanish America as well as distributed around the islands. Sugar had to be transported back to Europe. Credit facilities and insurance were vital to make this economy work. Increasingly during the eighteenth century the profits generated by the Caribbean trades and the debts owed to metropolitan merchants were considered vital by European states. When France entered the War of American Independence in 1778, the safety of Britain's West Indian islands dominated the strategy of the final part of the war.[51]

The Western Atlantic: South and Central America

Despite the rising value of tropical produce, it was Spanish silver and Portuguese gold which lubricated the early modern economy and was of critical and growing significance to the maritime economies. It was Spanish and Portuguese demand for European produce, for slaves, foodstuffs and raw materials, and their ability to pay in hard currency that was the foundation of colonial commerce. The Spanish milled dollar became the universal currency of the Americas.

During the latter part of the seventeenth century, there was very little local maritime commerce between the ports of Spanish America. The major population centres were on the other side of the continent or mountain ranges, at Lima and Panama, Grenada (Nicaragua) and Mexico City. The depredations of pirates had made extensive settlement on the Caribbean coasts too dangerous outside of the fortified ports of the treasure fleets. The colonists were forced to rely upon an irregular service from whoever would take the risk. By the 1720s, the pirate menace was largely eradicated, and despite a prohibition on foreign merchants, smuggling by British, French and Dutch traders based on the West Indian islands became a lucrative business that was to embroil Spain in major diplomatic disputes with these powers.

Travelling down the coast of South America from Cartagena de las Indias, the coastline was sparsely inhabited. River estuaries out of the way of the main treasure routes had some concentrations of populations, particularly Puerto Cabello and La Guaira (modern Venezuela). Further south was the Dutch plantation colony of Surinam. Portuguese Brazil extended down the coast as far as the River Plate. Significant shipbuilding took place at Belém south of the Amazon estuary. The great sugar plantations of Pernamboco (Recife) and Bahia (Salvador) attracted considerable trade into the 1690s. Rio de Janeiro became a major port after the discovery of gold two hundred miles inland.

The River Plate divided Brazil from the Spanish Vice-Royalty of Peru. Buenos Aires was a substantial town in Spanish territory which provided an alternative route to Lima overland across the Andes. It was longer but less dangerous than the Caribbean route. The Portuguese hoped to gain access to Peruvian silver by establishing the town of Sacramento on the Brazilian side of the river. It was not until the 1770s that Buenos Aires became a major trading centre in its own right with the expansion of the leather and hide industries.[52]

The main point is that during the period 1650 to 1830 ships were attracted to trade right the way down the eastern coast of South America but never in such large numbers as frequented the Caribbean. Furthermore, nowhere along this coast or among the islands of the West Indies, except possibly Havana and Belém, was there a strong economic or social base for maritime industries. Ships, stores and storehouses rotted quickly in the humid atmosphere and the warm waters. Seamen died in large numbers from tropical diseases such as yellow fever. Foodstuffs had to be brought from the north. The wealth of the Americas and the West Indies and the high deterioration of capital assets were a major stimulus to the shipping industries in Europe and North America, but a major drain on the human beings that operated the vessels.

The Western Atlantic: North America and Canada

The eastern coasts of North America were the breadbasket and storehouse of the West Indies. The first English settlements were in the Chesapeake Bay (1607) where, after a precarious few decades, tobacco became a thriving trade which extended into Maryland and North Carolina. The figures in Table 2.3 indicate the growth of the tobacco market in England.

Table 2.3 Tobacco imports into England

1619	20,000lb	1668–9	9,000,000lb
1630	148,000lb	1680	12,000,000lb
1662–3	7,000,000lb	1699–1700	22,000,000lb

Source: R. Davis, "English foreign trade, 1660–1700", in W. E. Minchinton (ed.), *The growth of English overseas trade in the seventeenth and eighteenth centuries* (London, 1969), p. 80.

While English and Scottish merchant shipping dominated the tobacco fleets of the Chesapeake, there was a growing domestic maritime commerce. The main source of New England wealth lay in its shipbuilding and shipping industries. By 1700, approximately 50 per cent of all shipping in British North America was owned by Boston merchants.[53] Proximity to all kinds of woods required for shipbuilding and naval stores such as tar from North Carolina enabled builders to produce with costs 40 per cent less than in Britain.[54] This industry placed Boston at the centre of the carrying trade in the Americas. Boston was the principal entrepôt for European goods which were distributed throughout the colonies. Boston fishing vessels and timber merchants traded with Portugal and Spain, making substantial profits received in hard cash. Boston merchants took horses, fish, flour, bread and lumber to the West Indies, and brought back sugar, rum, indigo, fustic, dyewoods, ginger and other tropical produce. This was distributed throughout the colonies or sent on to Britain.[55]

Other colonies had large-scale trades in these products as well, but did not come near the volume or value of Boston's trade. New York, settled after 1664, and Philadelphia were distribution centres for the backcountry of the Jersies, the Delaware and the Hudson Valley. New York shipowners sent furs to Britain and grain to Virginia and the West Indies. Philadelphia merchants sent victuals to Maryland and the West Indies and from 1699 were directly involved in the tobacco trades.

The dynamism of the colonial shipping sector was an important factor in the development of British shipping in the early eighteenth century. Although production concentrated on small vessels of less than 100 tons, the Massachusetts fleet grew by approximately 58,000 tons between 1699 and 1714, doubling in just two years, between 1698 and 1700.[56] Of this Boston's share increased from 73 per cent of the vessels to 91 per cent. During the century, improved business organization and communications dramatically reduced time in ports. The growing security of British shipping also enabled shippers to reduce substantially the armaments and crew sizes. Insurance premiums also

began a slow fall.[57] By the early eighteenth century, Britain was making use of colonial shipping resources and investigating the use of North American naval stores.[58] It would not be long before colonial seamen would be an important part of Britain's naval force. From the end of the War of Spanish Succession in 1713, English shipowners were buying colonial vessels which were cheaper than British-built ships. By the time the American Revolution broke out in 1775, about one-third of British merchant shipping was American-built.[59]

Canada did not provide anything like the maritime resources to France that North America provided to Britain. While the French fishing industry sent between two and three hundred ships a year to the Newfoundland banks for cod, seldom more than 15 ships a year made the journey up the St Lawrence to Québec and Montreal.[60] The French population was sparse and French colonial policy, strongly motivated by a suspicion of the Huguenot merchants who dominated the trade to Canada, was aimed at limiting rather than expanding their activities. From the 1670s to the fall of Canada in 1761, there were always enough French settlers, explorers, hunters and soldiers in the colony to disturb the expanding English colonies to the south, but the gap in population and wealth was growing ever more decisive. French commercial success was concentrated on the fishing industry off Newfoundland, which the fortress of Louisbourg was built in 1713 to defend. The hopes that the hinterland around Québec would become a centre for food production and trade to support the Atlantic settlements and the drive westward down the Mississippi and around the Great Lakes were never fulfilled.[61]

Africa

The Portuguese coastal trade with Africa had been in existence since the middle of the fifteenth century, but by the 1650s, their trade had been eclipsed by the Dutch. The slave trading posts of Elmina, Axim and Gorée on the Guinea coast had fallen to the Dutch. The Portuguese lost and then recaptured their post at Luanda (Angola) which became their centre for the slave trade, although they retained some small, largely inaccessible posts in northern Guinea. They were joined in the slave trade on the Guinea coast by the English who captured Cape Castle from the Dutch in 1664 and the French who took Gorée in 1677.[62]

To the south the Dutch established themselves at the Cape of Good Hope as a refreshment stop for their East Indies trade. Although it was a healthy environment for Europeans and it attracted settlers whose agricultural produce refreshed the passing

not develop into a major centre for trade. Further north the Portuguese refreshed at Mozambique, a far less healthy spot. Further up the east coast of Africa, to the Persian Gulf, European traders competed with the established Arab seaborne commerce. Some of the earlier naval battles between Europeans and Arab vessels in the Indian Ocean took place in these waters but, throughout the eighteenth century, this coastal trade did not have a major impact on the employment of naval forces.

The Far East

India and, eventually, China were the most distant trades undertaken by European merchants. The voyage out to Portuguese Goa, Dutch Batavia or English Bombay took about eight months. Awaiting cargoes brought in by smaller "country ships" or sailing further eastward to gather a cargo could take a further eight to ten months and the return journey took another eight months. Voyages to the east required enormous financial backing, not just because of the credit needs of the venture but because substantial investment was needed in the ships that carried out the trade. It was in the waters of the Indian Ocean that the Portuguese first used large cannon, mounted broadside in their ships, to defend themselves against hostile Arab vessels. Not many ships were lost in the trade, but they had to be heavily manned, fairly heavily armed and there was always a tension between the owners who wanted to build as large as possible and the crown authorities that feared for the stability of the ships. It was the Portuguese Indies trade that led to the earliest 2,000 ton vessels. Until the 1790s most Indiamen ranged around 500 tons, growing slowly over the period but still comparatively large for the time.[63]

Although the Portuguese had been trading in the Indian Ocean since the 1490s, there was a major expansion of trade between 1650 and 1670, as the English, Dutch and French sent out growing numbers of vessels.[64] Throughout the period, joint stock companies dominated the trade to the east. They had the access to capital necessary for the supply of large ships. The regional chambers of the Dutch East India Company (VOC) had their own yards, including from 1661 the magnificent complex at Oostenberg, which served the Amsterdam chamber and built about 50 per cent of the company's ships.[65] The London East India Company had its own yards at Deptford and Blackwall but sold them in 1654. However, their need for high-quality large vessels could not easily be catered for by most private yards and so there grew up a group of merchant shipbuilders who specialized in this type of vessel in return for a guaranteed employment of the ships–the so-called "hereditary bottoms".[66] Most East India Company ships were

under 500 tons, but there was a gradual increase in the size of vessels during the eighteenth century. In 1793, the Company decided that the China trade demanded a fleet of 36 vessels exceeding 1,000 tons each. These large vessels bore a stricking resemblance to warships. In 1805, Captain John Wordsworth of the *Earl of Abergavenny* (1,182 tons) claimed she was "the finest ship in the fleet; nobody can tell her from a 74-gun ship". In 1800 the French frigate *Medée* surrendered to the *Exeter* (1,200 tons) and the *Bombay Castle* (1,200 tons) after her captain mistook them for ships of the line.[67] India also became important for the local building of warships after 1803, when the Royal Navy initiated a series of initatives to exploit Indian timber reserves.[68]

Conclusion

The years between 1650 and 1830 witnessed major changes in the maritime economy. The volume of seaborne traffic increased dramatically and equally significant was its diversity. The number of countries involved in substantial maritime commerce increased. The Dutch domination of the carrying trade declined rapidly in the second half of the seventeenth century and although English trade probably expanded faster over the whole period than any other nation, the French merchant marine showed major periods of vitality at the beginning and the end of the century. From the middle years of the century, Swedish and Danish shipping was seen in the Levant, West Indies and Far East. Prussian and Austrian shipping, and at the end of the period Hamburg shipping, plied the ocean routes as well. Perhaps the most spectacular growth was the merchant marine of the new United States of America. From 1784, American ships competed aggressively with the British and French. France in particular, experiencing what has been called a "golden age"[69] of its merchant carrying trade, probably expected a further boost from grateful consumers in American markets, but instead found United States ships penetrating its traditional markets in the Levant.[70] Changes in ship technology and cargo handling had made commerce quicker, safer and cheaper than it was in 1650. Goods like sugar, coffee, tea and tobacco, once exotic luxuries, had become available to much larger sections of the population. There was, by comparison with 1650, a highly integrated and competitive commercial network.

The Dutch decline occurred at a time when the trade networks were becoming truly oceanic. Competitive advantage which had lain in efficient European carriage was not easily maintained as the needs of so many different markets had to be satisfied. The Indian Ocean, the South China Sea, the Southern Atlantic and eventually the Pacific

attracted growing numbers of traders. The companies that had dominated overseas trades in the sixteenth and early seventeenth centuries could not maintain their monopolies effectively. Their profits dwindled in the face of independent traders and regulated companies. The weaker companies, confounded by political as well as business objectives, succumbed during the seventeenth century. The Dutch West India Company (1600–28) and the French Compagnie de la Nouvelle France (1626–63) and Compagnie du Nord (1667–77), set up with political rather than commercial objectives, failed to integrate with the local maritime economies. Inadequate financing in the face of rising competition destroyed the Royal African Company (1672–1753). By the last quarter of the eighteenth century, the cost of enforcing monopoly and the economic advantages of free trade were undermining other companies. Free ports in the Spanish, British and French West Indies were opened. The French Compagnie des Indes collapsed in 1769. The trade in slaves to the Spanish colonies was freed in 1789. The strongest of all the companies, the Dutch East India company collapsed in 1799 under the weight of war with France, while the British United East India Company lost its monopoly in trade with India in 1793 to domestic political enemies. Further assaults upon its trading status were successful in 1813 and it ceased to trade completely in 1834.[71]

By 1830, maritime trade was a major aspect of the world economy. It provided the raw material and a powerful motivation for conducting war at sea. Yet it cannot, by itself, answer some vitally important questions about seapower. It does not provide the whole answer to the question of why states built navies. Nor can it explain why navies were configured in the way they were. Furthermore, it does not explain the critical questions of what states thought they were doing when they embarked upon naval war and why they conducted the wars in the way they did. The role of trade in these decisions was often very limited. The changing maritime environment was a vital background consideration for statesmen embarking on war, but never the unique determining factor. To understand this, it is necessary to understand how contemporaries viewed the ships and seapower.

Chapter Three

The battlefleet and the idea of seapower in the early modern world

In his political testimony intended for the advice of the young Louis XIV, Richelieu summed up his view on the crown's relationship to the sea: "Dominion of this element has never been assured to anyone. In a word, the old titles to this realm are force and not reason."[1] In this respect there is a firm continuity of understanding about the reality of seapower that runs from the seventeenth century to the present day. Mahan's argument for an overwhelmingly powerful battlefleet was an expression of this reality. However, there is a temptation to extend this idea of continuity to believe that because seventeenth- and eighteenth-century statesmen recognized the fragility of seapower, they also shared with their late nineteenth-century successors a view of what "domination" and "force" meant. In the late nineteenth century, seapower was synonymous with formal state navies–naval power. In the early modern world the meaning of seapower was less clearly defined. Only towards the middle of the eighteenth century does the idea of a naval "strategy" which encompassed an idea of long-term domination and force become explicitly expressed as part of state policy. This was in Britain, and later in the United States, where foreign policy had to be explained to suspicious legislatures.[2] Elsewhere, contemporary ideas of seapower and naval force have to be inferred from policy decisions. Yet ships and navies had a role to play in domestic politics as well as foreign affairs and so the decision to maintain a navy could owe as much to conditions inside a country as any desire to exercise naval force.

The most visible expression of seapower was the battleship. From the emergence of this distinctly strongly built and heavily armed type of warship during the first half of

the seventeenth century, naval power was measured by the number of these vessels a state possessed. Typically, at the height of their power in the eighteenth and early nineteenth centuries, these three-masted, square-rigged vessels carried between 60 and 120 cannons in broadside batteries.[3] From the 1650s, the English, Dutch, Swedes, Danes and French were well aware that squadrons of these ships had the greatest diplomatic impact.[4]

However, few statesmen based their views of seapower exclusively on the battleship. In 1663, Louis XIV spent 50 per cent of his naval budget upon his galley fleet.[5] Spain, which possessed the largest maritime empire of the day, invested very little in battleships until 1718. Galleys, which were supposed to have been eclipsed by the sailing warship in the early seventeenth century, were an important component of the fleets of Sweden and Russia during the eighteenth century.[6] In the 1790s, the newly independent United States of America based its naval defences not on the line of battle but upon a small force of powerful frigates and over two hundred diminutive gunboats.[7]

To historians of the early twentieth century, these were simply mistakes made by monarchs and statesmen who had no grasp of maritime power.[8] The dominance of the world's oceans by the British Royal Navy, which first outbuilt and then outfought its enemies with battleships, proved that seapower was measured by the battleship. The reality, as usual, is rather more complicated than this. To the seventeenth- and eighteenth-century mind the role of seapower and the advantages of battleships were less obvious. The dominance of the battleship was based on its ability to appear in almost all the waters of the world in sufficient numbers for a long enough period to overwhelm local naval resistance. By the end of the Napoleonic Wars in 1815, British battleships dominated most oceanic sea routes by concentrating on the terminal points of these routes. They prohibited equal concentrations of potentially hostile men-of-war and allowed a variety of smaller vessels to exploit the advantages of sea communications. The British Isles and colonies were protected from attack. Frigates could destroy enemy merchantmen or privateers, support landings, attack pirates and protect friendly traders. They denied the advantages of the sea to their enemies while reaping maximum advantages for themselves. This was the classic exercise of seapower–sea control and sea denial.

However, progress towards this end was neither uniform nor fast. It took about two hundred and fifty years to achieve, and involved the most highly developed maritime and financial infrastructure the world had ever known. In times of peace the cost of maintaining a naval force was so high that it was politically difficult to sustain. In the 1760s, after the most dramatic naval triumphs Britain had ever witnessed, there was not the political will to maintain a navy that would keep its enemies in awe.[9] The overwhelming power of the British battlefleet was the product of decades of investment and of a

peculiar set of political, diplomatic and economic circumstances. Although many states invested in battlefleets from 1650, the willingness to invest in the attendant infrastructure was less evident. The advantages of oceanic seapower, based upon a flexible battlefleet, were probably not clear to other powers until the 1760s. The construction and maintenance of a navy had to be placed into the context of other pressing military concerns and a realistic appraisal of the basic maritime resources of a state. To challenge British oceanic seapower demanded major sacrifices which other powers did not see as necessary or worthwhile.

Their navies had other uses and the significance of the sea was perceived differently. The battleship was only one element of seapower. The primary purpose of sea control or denial was to enable a power to exert military or political pressure upon its enemies. This usually meant enabling armies to occupy and attack enemy territory. This amphibious power was the key to investment in naval forces. Since the mid-fifteenth century in the Levant, the Christian–Ottoman wars were fought across the Aegean and Adriatic by armies transported, supplied and protected by warships. Galleys were manoeuvrable and dependable vessels in the complex, shallow coastline of the Greek archipelago. Battleships became important to protect these lightly armed galley fleets in deep water, but could never replace them as flexible inshore forces. During the Cretan War of 1644–69 both sides found mixed forces of galleys and sailing warships were essential to support land operations. The stowage capacity of sailing ships made long-distance cruises more sustainable, such as the periodic Venetian blockades of the Dardenelles and speculative coastal raiding. By the end of the war, the Turks had captured Candia on Crete, but the first two Venetian sailing battleships had been added to their state fleet. The same mixed fleets of galleys and sailing ships dominated operation during the Morean War (1684–99). In 1684, the Venetian battleships effectively defended the lines of communication between Morea and the Holy League ports, but could not catch the Turkish galley forces which supported and reinforced the garrisons. Likewise, the Turks found that their galleys could not successfully attack Christian sailing warships. In 1690, 26 Turkish galleys failed to capture three Venetian warships which had been isolated during a lull in the winds. By the war of 1714–18 the number of sailing battleships available to the Christian allies and Turkish fleets had expanded and a variety of sailing fleet actions were fought to defend galley forces operating inshore. Still, in light winds the galleys assisted by towing warships in and out of action.[10]

In the mid-seventeenth century, the main function of the Swedish navy was to protect the lines of communication to the army in Germany. For this it needed a battlefleet to defend the lighter vessels against Danish attack and smaller vessels for

inshore work. In the 1680s the main Swedish battlefleet base was developed at Karlskrona to challenge the Danes in the southwest Baltic, away from the shallow waters off the ports of the southeastern Baltic coast. When Russia became a threat in the eastern Baltic after 1703, Sweden was initially unprepared for landing and supply operations within the shallow and convoluted archipelago of the Gulf of Finland and it took a while to expand the galley fleet. The galley and, much later, the gunboat became essential elements in the Russo-Swedish wars of 1741–3 and 1788–90. In both the Levant and Baltic, seapower was essential for the projection of military power to any distance and it rested on the effective combination of forces that could dominate deep water and shallow coastal areas. By 1815, the Pax Britannica rested upon the same effective combination of sea forces. Britain had marshalled an unparalleled amphibious, trade interdiction and battle capability based upon her ability to combine battleships, small sailing warships and army landing forces in almost any part of the world. For Britain, the oceanic scale of the venture meant the battleship played a central role in the slow development of this capability, but for a long period it appeared neither obvious nor inevitable to other powers.[11]

Since the sixteenth century, the heavily armed sailing warship was seen as a floating castle, impregnable except by another similar ship. Their size and firepower forced smaller, less well-armed vessels to keep at a discrete distance. Because the range of smooth-bore cannon was very limited, even ships of equal force and size found it difficult to concentrate overwhelming firepower upon an individual enemy vessel. These ships could also absorb a fearful pounding from the iron cannonballs. With two or more enemy vessels around a warship, dividing the fire of defenders and restricting their manoeuvrability, a warship might be overcome by gunfire or boarding. By the 1650s the English were building their vessels rather larger and with a higher ratio of guns per ton than their Dutch rivals, but in all countries there was a general consolidation of the warship at under 1,000 tons and capable of carrying between 30 and 80 guns of different sizes. There was a great variety within this definition as the ability of merchant vessels to fight alongside purpose-built warships was still important when the principle tactic was to close and board the enemy in a mêlée. By the time the line of battle was firmly established as the standard tactical formation during the 1660s, lighter merchant ships and lightly armed warships became less able to sustain their place in a pitched battle, leaving the centre stage to the purpose-built line-of-battle ship ranging eventually up to 2,000 tons and carrying 120 large cannon.[12]

In the North Sea, the Western Approaches and the Channel, the battleship was in an ideal environment. Its sail plan and hull design was well-adapted for the stormy Atlantic

weather. It was stable and, given adequate sea room, manoeuvrable in coastal waters. The ships were close to the dockyards, which in turn were close to the forests or the waterways by which timber came for construction and repair. These yards also had access to the pine forests and Baltic trade routes that brought the vital naval stores of pitch, deal and hemp. Crucially, they were able to draw upon the strong maritime economies in mainland Europe and Britain. Victuals, stores and, most important, trained seamen were vital to keep these vessels at sea. An 80-gun man-of-war might carry a crew of about 600, at least one-third of which had to be experienced seamen able to handle the sails efficiently and as a team. Powerful as they were, the line-of-battle ships were vulnerable.

It is probably no coincidence that the largest sea battles between sailing warships took place in the North Sea. The battles of the three Anglo-Dutch Wars (1652–4, 1664–7 and 1672–4) illustrate both the power and the weakness of this type of vessel. Purpose-built warships and converted merchantmen fought along side each other in battles that could engage over 150 ships. At the Battle of Lowestoft on 3 June (o.s.) 1665 over 210 ships were present. This compares with Trafalgar in 1805, in which the three fleets together consisted of 68 ships.

The battering that these vessels inflicted on one another was intense and in the confused mêlées, ships were boarded, captured or burned. However, on each occasion, these large fleets could put their damaged ships back into port, where they had maximum resources to repair, re-store and re-man them. Even here, the pressure that battle damage placed upon the yards was enormous. The diarist, John Evelyn, wrote after the Four Days Battle in 1666 that the fleet had "hardly a vessel entire, but appearing rather so many wracks and hulls, so cruelly had the Dutch mangled us".[13] Both fleets were able to get to sea again within the month, but at the end of the campaign English financial resources had been exhausted. Victuals and storehouses had been stripped to meet the needs of the fleet.[14] Thus, at the very centre of the maritime and shipbuilding world, the maintenance of battlefleets was a crippling burden.

The ships themselves were vulnerable to smaller vessels in shallow or confined coastal waters. The *Prince* (92), Sir George Ayscue's flagship at the Four Days Battle 1–4 June (o.s.) 1666, ran aground and was surrounded by smaller Dutch warships which overwhelmed her before she could be refloated.[15] Six others ships were captured by the Dutch, two sunk and one burned. In 1672, at the Battle of Solebay (28 May o.s.), the Earl of Sandwich's flagship, the *Royal James* (100), was caught and burned by a fireship as she manoeuvred clear of another Dutch warship.[16]

The prize for success was, however, control of the narrow seas. After the Battle of the Kentish Knock on 28 September (o.s.) 1652, the Dutch were forced to withdraw from

the Channel, but on 30 November de Ruyter defeated the English off Dungness, thus opening the way for him to escort the homeward bound merchant fleet from its rendezvous at the Ile de Rhe, near La Rochelle.[17] English victories at the Gabbard (1–2 June (o.s.) 1653) and Scheveningen (31 July (o.s.) 1653), closed the Channel to the Dutch and forced them to come to terms. Likewise, in 1666 and 1673, the inability of the Dutch to drive the English fleet from its coast put intense pressure upon their commerce. However, the limitations of this seapower became evident, as even when nominally in control of the North Sea and at a short distance from its own yards and resources the English were unable to sustain their forces off the Dutch coast. During the First Anglo-Dutch War (1652–4) English merchant shipping remained at the mercy of Dutch and Royalist privateers, as well as French pirates. In the second half of the seventeenth century, the battlefleet was a very blunt instrument. The ability of navies to control the maritime communications at any distance from their home ports was to develop very slowly.[18]

The battleship was also vitally important in the Baltic. The geography of the region made transport by sea for armies and goods far more practicable than movement overland. Shipping was forced to concentrate through narrow chokepoints, at the Sound or the archipelago. Here they were vulnerable to battleships, and both Denmark-Norway and Sweden kept sizeable battlefleets to defend their territory from invasion. The Swedish battlefleet was critical to keep communications and support open to the army operating in Germany and Poland. Both the Swedish and Danish fleets were important to maintain a broad balance of power in the Baltic upon which neutral trade depended.[19]

However, the Baltic was far from ideal for the battleship. The shallow coastline and narrow seaways among the Scandinavian archipelago made navigation difficult for deep-draughted ships. On 1 July (n.s.) 1677, it was the grounding of the Swedish warship *Draken* (64) that gave the Danish commander, Juel, the opportunity to inflict a substantial defeat upon the Swedish fleet in Køge Bay. The shoal waters of Køge Bay claimed two more Swedish warships in 1710. The *Tre Kroner* (86) and *Prinsessa Ulrika* (80) missed their stays and ran aground. Admiral Wachtmesiter found it impossible to refloat them and so was forced to burn them to prevent them falling into Danish hands.[20] In 1679, in the Kalmar Sound, the Swedish ship *Nyckel* (84) ran aground, coming out when some Danish warships were sighted. She was surrounded by four smaller Danish ships, eventually caught fire and blew up. It was a significant factor in the attrition of naval forces through to 1790.[21] Battleships were also vulnerable in combat, just as they were in the North Sea. At the Battle of Oland on 1 June (n.s.) 1676, the Swedish Admiral Uggla's flagship, the *Svard* (94), was isolated by the Dutch and Danish warships and burned by

a Dutch fireship. Earlier in the same battle, the Swedish fleet flagship, the *Krona* (126), had exploded after poor seamanship had put her on her beam ends in a squall.[22] Maritime manpower was too scarce to enable the Baltic powers to suffer too many major battleship losses.

Beyond the western or northern coastal regions of Europe, the maintenance of substantial numbers of battleships was even more difficult and open to question. Even in the Mediterranean, with its ancient and well established markets and ports, there were difficulties in sustaining a large force of sailing warships. English squadrons made their appearance in 1650, when General at Sea Robert Blake pursued Prince Rupert's Royalist navy from Lisbon to Cartagena. Blake only had six ships and was not in these waters long, but he was back in 1656 for almost a year, with 24 ships including 15 battleships. Blake found it difficult to subsist such a force from Sardinia, North Africa and the Balearic Islands.[23] Other squadrons protecting English trade from the Barbary corsairs appeared in 1674, 1677–9 and 1682–3.[24] These forces used the Italian ports, Cadiz and Gibraltar to revictual and supply. The warships were not intended as a permanent force, nor were they at war with the major Mediterranean sea powers, so the question of large-scale, long-term supply did not emerge. In 1694, during the Nine Years War (1688–97), William III decided to overwinter a squadron of warships in the Mediterranean in support of his Spanish allies.[25] This was the beginning of an English attempt to maintain a permanent presence in the Mediterranean and with it came the problem of supply. For the next 120 years, English commanders had to try to sustain their squadrons with very limited resources. The capture of Gibraltar in 1704 and Minorca in 1708 gave the English secure anchorages where they were not dependent upon the goodwill of allies. They also provided space for storehouses and yards, although Lisbon remained an important port as a halfway house during the whole period. Italian and North African ports could provide useful markets for food, but the vital naval stores had to be transported out from England. Throughout the period, the correspondence of the naval commanders-in-chief are littered with their fears about lack of stores. Throughout 1742 and 1743, Admiral Thomas Mathews complained that he was on the verge of being unable to do his duty for lack of either masts or sail cloth for his ships or clothes for his seamen.[26] Mathews was an exceptionally disgruntled commander and there was very little about which he did not complain or upon which he did not have an opinion that stung the Navy Board. Nevertheless, his fears and experiences were echoed by other commanders at different times.[27]

For the Mediterranean powers, the problems were very similar. Good supplies of oak could be found in Albania, Tuscany, Provence and Languedoc but political instability

and lack of control over the local forests made it difficult to get the wood to the ports.[28] Masts could be had from the Dauphine, Pyrennees and Franche Comte, but they were poor quality compared to those from Scandinavia. It was not until 1781 that good quality Russian mast timber could be had from the Black Sea.[29] Toulon was the largest yard in the Western Mediterranean. In the Levant, shipbuilding was conducted on a relatively limited scale. The vast quantities of timber required for a sailing warship compared to traditional fighting galleys discouraged a great shift in building policies. Although provided with bases, none of the Mediterranean powers had a good supply of materials or ocean-going seamen to man their vessels. Throughout the period of the sailing navies, it took a major effort to equip and man squadrons departing from the Mediterranean ports. In 1683, Louis XIV decided to bombard Genoa in retaliation for Genoese help to Spain during the war of 1673–8 and some effrontery that Louis' ships had met with from Genoese vessels. About half the ships in Toulon were unseaworthy, there were inadequate supplies of powder in stock and seamen were difficult to find. Eventually, on 15 May (n.s.) 1684, Du Quense arrived off Genoa and within days had forced the Genoese to terms, but the difficulty and the cost of mounting this operation against a small state had been so great that it raised serious questions about how the French navy would perform against a more formidable enemy in these seas.[30] It was a problem that the French navy never solved.

In the Americas the problems were magnified. There were even fewer ports capable of making substantial repairs to a large man-of-war. Timber and masts were available in the northern colonies, but there were no ports equipped to handle the exceptionally large line-of-battle ships. The arrival of a squadron of warships, with their demands for fresh victuals, naval stores and especially replacement seamen was a source of major tension between the imperial authorities and naval officers.[31] Throughout the entire life of the French North American empire (1608–1763), there was never a strong, well developed port that could sustain a large number of line-of-battle ships.[32] Louisbourg on Cape Breton, which might have fulfilled this role, was barren and had little local infrastructure to thrive after the initial royal investment.[33] Even as late as the American War of Independence (1775–83), there were inadequate naval facilities for Britain to maintain a strong battlefleet in America without the constant shuttling of ships back and forth across the Atlantic for repair and refitting.[34]

Ports in the Caribbean developed earlier but were ill-equipped. Masts and timber could be brought from North America, but a return trip to the Caribbean ports could be as long and arduous as that from Europe and fraught with local difficulties. In February 1741, Admiral Vernon, at Port Royal Jamaica, dispatched the *Astrea* to Boston

for a supply of masts and timber stored there. Once at Boston, Captain Scott pressed men to serve on the *Astrea*, which infuriated the local community. When Scott returned in March 1742, the Massachusetts Council resolved to fire upon the *Astrea* if Scott attempted to leave harbour. In the meantime, Vernon fretted about the depleted state of his storehouses.[35] The same kind of problems faced the Spaniards. Havana provided timber and other naval stores which were needed in ports along the Spanish Main, but the prevailing winds and currents made the journey leeward long and hazardous.[36] Naval stores and ordnance were always scarce, but when large squadrons of battleships arrived any reserves were quickly exhausted. Commanders had to operate in the knowledge that severe storm or battle damage might decisively reduce their fighting strength. Admiral Vernon, who commanded over 30 battleships in the West Indies during 1741, the largest force seen in those waters up to that point, was strongly influenced by the threat of damage to his ships. His Spanish opponent, Don Rodrigo de Torres, at Havana was equally anxious to conserve his ships.[37] In October 1780, a savage hurricane swept through the Leeward Islands. Commodore Walsingham's ship, the *Thunderer* (74), was lost with all hands. The *Stirling Castle* (64) was also wrecked. Three other "74s" were severely damaged. Fortunately, the main force under Admiral Rodney was not in those seas at the time, but when he returned to St Christopher to undertake a campaign in the region, he found that the storehouses there and on St Lucia had been blown down and the reserve of stores consumed. The damage was equally severe to the French on St Vincent.[38]

Perhaps the biggest problem for the maintenance of large men-of-war in these waters was that of manpower. Manpower was scarce in the West Indies and there were plenty of interests willing to connive with sailors who wanted to escape service on a warship. Naval officers were caught in a vicious circle. The larger the force of battleships sent to the region, the larger would be the demand for seamen and, therefore, the more ruthless the press. The more ruthless the press, the more seamen stayed away from the main ports or the islands altogether, diverting trade and precious stores to other destinations.[39] The problem it created for relations between naval commanders and local authorities was similar to that in North America but, because the squadrons were generally larger and the mortality rate higher, more frequent. The French and Spanish fared even worse. Unlike the British colonies, there was very little inter-colonial maritime traffic in between the French and Spanish colonies. This meant that there was not the quantity of colonial seamen that the British could call upon. French and Spanish squadrons had to rely much more upon the men they brought with them from Europe. During the period 1689 to 1713, French squadrons may have been generally healthier than those sent from

England, but by the mid-eighteenth century, this advantage was less evident. In 1740, the Marquis d'Antin's force of 22 line and five frigates sailed for the West Indies to pre-empt a British assault upon the Spanish empire. By the time the force arrived in the West Indies it had weathered severe storms and sickness had taken hold of the crews.[40] At Port Louis, St Domingue, the biggest of the French West Indian colonies, there was no hope of obtaining adequate supplies of manpower or stores for a protracted campaign, so d'Antin took his force home again. D'Antin himself died of fever shortly after arriving back at Brest. A similar fate befell the expedition of the Marquis d'Enville, who was sent out to do what damage he could to the British North American colonies in June 1746. By the time they reached Chibouctou (modern Halifax) 8 per cent of the force were dead and about 25 per cent sick. There was nowhere to recover, recruit and repair and so the force returned to France.[41]

For the British, at least, there was a gradual expansion of the dockyard capacities in the West Indies during the first half of the eighteenth century, which made it possible during the 1740s to maintain large squadrons of battleships in the region, but it was not until 1758 that large squadrons of warships began to overwinter in North America. This ability to remain on station without exhausting the force gave the British a critical advantage as it enabled them to operate early in the season in the absence of equally large numbers of enemy battleships. Whenever one power managed to get a fleet to the Americas in the absence of their enemies, a great deal could be achieved. De Pontis managed to elude the Anglo-Dutch squadrons to appear in the West Indies in 1697. Before an English squadron arrived in pursuit, de Pontis had captured Cartagena de las Indias and sailed again for home. The French were again able to achieve a temporary superiority in West Indian waters, enabling them to capture Tobago (1780) and recapture Martinique (1794), but for most of the period it was the British that enjoyed this superiority, both in the West Indies and off North America, and it was this that underpinned their successful colonial campaigns. When this superiority disappeared, between 1740–1 and 1778–81, the strain on resources began to become obvious. More ships had to be sent, which consumed more manpower and naval stores. More sea had to be covered and more vessels were required at sea. On 5 September 1781, Vice Admiral Thomas Graves, fought the critical Battle of the Chesapeake. It was partly his lack of stores and the poor condition of his ships that determined him to return to New York before attempting to make contact with Earl Cornwallis' army that was surrounded at Yorktown.[42]

The same patterns and problems can be seen in the seas that witnessed the furthest limits of sustained sailing battlefleet activity, the Bay of Bengal. There were no ports on

the western side of the bay capable of supporting or refitting a battlefleet in all weathers. Trincomalee was the best harbour, but it was poorly developed as a port. Bombay, Port Louis (Mauritius) and Batavia were the nearest substantial supporting facilities for European battlefleets. In December 1781, when Monsieur d'Orves, sailed from Port Louis with 11 battleships and a troop convoy to campaign on the Coromandel Coast, he took with him the artificiers he would need for sustained operations.[43] The numbers of battleships operating in the Bay of Bengal was always small by comparison with other theatres. The ability of events on the Indian subcontinent to influence European diplomacy was very limited, and possibly only played a significant part in war from 1782 when France recognized that a decisive advantage could not be quickly gained over Britain in the West Indies. It took at least two years for ships to make a round trip to the east and carry out a campaign, which was too long in most calculations. Even at the end of the period, substantial battle or storm damage could not be put right easily or quickly. The waters were not at all well charted and ships, which constituted a proportionately larger part of the small local battlefleet than elsewhere, were lost to navigational accidents and bad weather. The need to shelter during the monsoons and the great distances from Europe in which many a mishap could befall a fleet or convoy meant that local naval superiority could remain very stable for long periods, but then could change extremely quickly.[44] As in the Americas, it was the British that enjoyed the longer periods of local supremacy, but this superiority was eliminated on a number of occasions by a very limited French naval commitment to those waters.

Therefore, although the battleship is today seen as the very symbol of seapower in the age of sail, it was not as omnipotent as it appears from the perspective of 1815. They had a vital role. Without them, it was impossible to exert a claim to sovereignty in local waters if faced by hostile battleships. However, the reach of these warships was limited. Although from the 1650s these warships were seen in increasing numbers in the Americas and from the 1740s they frequented the Indian Ocean and South China Sea, it took many decades for the infrastructure to develop which could maintain these squadrons for any length of time. Furthermore, even in European waters, the ability of a squadron of battleships to exert decisive pressure upon an enemy was extremely limited. The first two Anglo-Dutch Wars (1652–4, 1664–7), and the Swedish–Danish Wars (1675–9) were early examples of conflicts in which the action at sea had a critical effect upon the overall outcome of the war. In the case of the Anglo-Dutch Wars this was because neither side had the land-based resources to inflict decisive defeat upon the enemy. With the Swedish–Danish Wars, victory at sea could unleash an army on the enemy's territory with devastating effect. Some other states, such as Genoa, Naples and the

Barbary States, were always very vulnerable to attack from the sea, and others like Spain were very dependent upon their imperial maritime communications. With these states, naval action could have a decisive impact. The bombardment of Genoa in 1684, the British threat to bombard Naples in 1741 and the blockade of the Spanish silver fleet in Porto Bello in 1726 each had a major impact upon subsequent events. Yet even with Spain, the lack of a powerful battlefleet was not critical. It was not easy to intercept the vital treasure ships and Spanish privateers wrought havoc upon enemy merchant shipping. For all the preponderance of English naval power in the war with Spain from 1655 to 1658, English trade suffered terribly at the hands of the Spanish.[45] It was only during the second half of the eighteenth century that naval forces began to have an increasing impact on the fate of states like France, Russia, Turkey, the United States, Spanish America and the Indian subcontinent.

The concentration of attention upon Britain as the exemplar of seapower can distort the importance of navies to the world of 1650–1830. The reach of naval forces, the decisiveness of naval action and the impact of action at sea were the basis of British power in the nineteenth century. It was very slow to develop. The battleship, which was well established as a distinctive type of vessel by 1660, did not, by itself, ensure this reach or power, and it is not surprising, therefore, that although many monarchs invested in battleships, they did not regard them as the most essential arm of the state. Battleships were vulnerable to the weather and to enemy action. They demanded large quantities of skilled seamen. They were expensive to build and maintain. In 1746, the cost of building a 60-gun man-of-war, the smallest vessel that could, by then, stand in the line of battle, was £23,531.[46] The 100-gun *Victory*, launched in 1765, cost £63,174. This excludes all costs related to victualling, storing, ordnance and wages required to get the ship to sea. Maintenance and refitting all added to the cost of keeping ships seaworthy. Refitting the *Victory* in 1787 cost a further £36,782, another £70,922 in 1800 and £79,772 in 1814. The entire maintenance cost of a regiment of foot for one year in 1762 amounted to £18,365. To build these vessels required vast quantities of wood and stores. It has been estimated that one 74-gun ship required 50 acres of mature timber in its construction.[47] The commercial infrastructure needed to build and maintain a substantial fleet was formidable. For most states, the loss of a major warship ranked as a catastrophe. By the beginning of the eighteenth century, Britain was almost unique in being able to concentrate its military expenditure upon its navy and have a large enough pool of seamen, skilled labour and maritime industries to absorb significant losses of warships and seamen. After the disastrous Battle of La Hogue, on 23–4 May (o.s.) 1692, in which the French lost 12 line-of-battle ships, Louis rebuilt his fleet. However, the effort in the

midst of a major land war and economic crisis meant that the fleet was never able to challenge the Anglo-Dutch forces on the basis of equality again. On 26 November (o.s.) 1703 a great storm hit the Channel and nine English battleships were lost. This disaster had almost no impact upon the English ability to conduct a war at sea.[48] Nevertheless, there were times, such as during the Anglo-Spanish War of 1656–8, the Second Anglo-Dutch War (1664–7), the Nine Years War (1688–97) and the American War of Independence (1775–83), when even Britain was stretched. Almost all other states found a significant loss of its warship strength was difficult to replace and a continuing attrition disastrous. In the 1750s and again the 1790s, French naval power atrophied as seamen became scarce and warships were captured.[49] The steady Spanish naval revival from the 1750s ended abruptly in the 1790s and was in complete collapse by 1810. Turkey found its naval force destroyed by revolt and defeat in 1827.[50] For most European states, the expense of mounting a challenge on the sea was enormous, the risk of loss high and the benefits questionable. Nonetheless, states did make some investment, often in vessels that seemed to provide little in the way of military force at sea. The reasons were far more varied than the term "seapower" might at first suggest.

Warships were not just the instrument of sea control or sea denial. They were an important symbol of royal power and grandeur. The line-of-battle ship certainly served this purpose wherever it was seen. The English *Sovereign of the Sea* (1637) and the Swedish *Wasa* (1628) were highly decorated expressions of royal power. Louis XIV's *Soleil Royal* (120) built in 1669 was the largest of a series of magnificent warships intended to reflect Louis' greatness.[51] The importance of the warship as a symbol was not missed by the English republic. The names of the vessels in the English Commonwealth's fleet recalled some of the emotive names of that regime–the *Speaker*, the *Marston Moor* and the *Naseby*.

However, it was not just battleships that provided these evocative symbols. After 1660 the English reliance upon its fleet was a clear choice by the political nation in preference to a standing army controlled by either a Protector or monarch. Whatever the composition of the fleet it was preferable to the tyranny of an army and was, despite European experience, consistent with monarchical principles. In the 1790s a significant number of the citizens of the newly independent United States viewed their navy rather differently. Any professional officer corps was viewed with suspicion. The frigate represented an expression of naval force that was consistent with a free republic, not dominated by an overbearing military aristocracy, and some of the names borne by these vessels reflected the republican values, the *Constitution*, the *President* and the *Congress*.[52] In the Mediterranean world, the galley was an important symbol of the crusade against Islam and traditional naval power. Both Spain and France invested in these ships as

symbols of their determination to dominate this sea. At the very time when Louis' sailing navy was reaching the peak of its power in the 1680s, so his galley fleet was growing to peak at 50 vessels in the 1690s. In building his navy, Louis did not see a sailing technology displacing oar propulsion, but as complementary forces projecting his image onto a European stage. The challenge of establishing his power in the Mediterranean was more complex than that he faced in northern waters. The religious aspects of his Mediterranean naval policy were more convoluted than with his northern Protestant rivals. The galley fleet, officered largely by the crusading Knights of St John, was an important element of French naval power. When England withdrew from the Dutch War (1672–8) in 1674, and Spain joined the Dutch, the focus of the war shifted to the Mediterranean. Louis' expenditure on his sailing fleet began to fall while his spending on the galleys rose from about 10 per cent of total naval spending in 1673 to 25 per cent by 1675.[53] The galleys also provided Louis with a powerful domestic symbol of his religious and royal power by providing floating prisons, particularly for Huguenots after the Revocation of the Edict of Nantes in 1685. The care, expense and time lavished on the *reales*, or flagships of the galley squadrons, could rival anything given to a sailing warship.[54] The yacht or similar small but beautifully designed vessels were also important symbols, but more usually for aesthetic taste rather than military grandeur of the ruler.[55]

It was a small step from building warships as symbols of state or royal power to using them as diplomatic levers. One of the great values of naval forces in the modern world is as a highly flexible tool of diplomatic policy. Ships can be sent to support or oppose parties in different parts of the world. They can go singly or in force, representing the importance attached to the visit by the naval power. They can go as a highly visible deterrent or mask their destructive power by remaining out of sight. The force can rapidly change in composition as vessels leave or join and hence rapidly modify the signals it gives out to the local political leaders.[56]

The early modern navies were not as flexible as their modern counterparts, but they were still important diplomatic tools. Battleships naturally played this role best. From the 1650s, English and Dutch naval forces were regular visitors to the Sound in times of tension in order to protect their trade and to prevent major disruptions to the generally successful balance of power between Sweden and Denmark. The emergence of Russia as a Baltic power after 1711 gave additional purpose for venturing into the Baltic itself on a number of occasions from 1715 until the end of the Great Northern War (1700–21).[57] Almost ninety years later, between 1810 and 1812, Admiral Sir James Saumarez, commanded a squadron in the Baltic, patiently countering French influence in the region.[58] In April 1735, Admiral Sir John Norris was sent with a squadron to Lisbon to

demonstrate British support for Portugal in a dispute with Spain, where he remained until October when negotiations reduced tensions.[59] In 1734, a French squadron was fitted out at Brest for the Baltic to provide support for Louis XV's father-in-law, Stanislaus Leszczynski, in the War of Polish Succession.[60] Russia's first exposure to the construction of the three-masted warship occurred as a result of Dutch artisans building the ship *Frederik* at Nijni Novgorod for an ambassador to Persia in 1635.[61] Throughout the difficult years between 1807 and 1825, as the Portuguese and Spanish colonies in America fought their wars of independence, Royal Navy warships applied pressure upon Spain and Portugal to limit their intervention, despite being allied to them in the struggle against Napoleon.[62] Nonetheless, other ships could play a diplomatic role. In the Mediterranean, where the galley held a special place, summer cruises were undertaken regularly for diplomatic purposes.[63] In 1815 Captain Stephen Decatur with three United States' frigates and some smaller ships was able to bring Algiers to peace before the arrival of Commodore William Bainbridge in one of the United States' first battleships, the *Independence* (74).[64]

One step further down the road was the active defence of trade. Some of the earliest established navies were created to defend trade. Venice, Genoa and Lübeck created navies to protect their trading vessels. Unlike the feudal monarchs, the city oligarchs depended upon trade for their wealth and power. The role of shipping and trade was so important to Venice that its Arsenal, the shipbuilding complex, became one of the greatest building, manufacturing and repair centres of the pre-industrial world, and its workers, the *arsenalotti*, an important force in Venetian political life.[65] In England, during the Civil War (1642–8), the credit for parliamentary armies depended on the trade receipts of the London merchants. Defending the trade to and from London became a much more explicit role for the parliamentary navy than it had ever been under the Stuart monarchs.[66] During the Anglo-Dutch Wars, both sides recognized the importance of choking off the trade of their enemies, although neither navy had the capability to sustain an effective blockade even in the narrow waters of the Channel and North Sea.[67]

By the mid-eighteenth century, the concept of a maritime blockade had become a practical proposition. Once again, it was the Royal Navy that first achieved it. The blockade of the French coast during 1759 crippled the French Atlantic dockyards, which relied upon coastal shipping to bring in supplies of timber.[68] It crippled the business of individual merchants, upon whose credit the French navy relied and it was a factor in the critical diminution of the pool of French seamen during 1757–9.[69] The revival of the blockade, its development and its success during the French Revolutionary and Napoleonic Wars (1792–1801, 1802–15), established the idea of the blockade as an

essential part of maritime strategy based upon the existence of a powerful fleet of battleships.[70] Although the close blockade of the period from 1801 had to be abandoned in the 1860s in the light of technical developments, the idea of the blockade remained fundamental to navalist thinking in the twentieth century.[71]

The growing importance of the blockade in naval warfare from the middle of the eighteenth century has led to its significance being overstated as a factor in the development of navies. As a strategy throughout the period of the sailing navies, it had a limited impact. It worked where there were substantial supporting facilities to repair and revictual the blockading fleet within easy sailing distance of the blockaded ports. The development of Portsmouth, Plymouth and Torbay was essential to the blockade of the French Atlantic ports. In the West Indies, the success of the blockade of Martinique during 1746–7 rested on the facilities available at English Harbour, Antigua, which had been developed since 1728.[72] For a blockade to be effective, small ships had to be available to cruise inshore, intercept coastal traffic and pass on intelligence about the ships in the port. In the North Sea, Channel and off the French Atlantic coast, these vessels were usually available, if seldom in the quantities required by the naval commanders. Hired Folkestone cutters became a common feature of British squadrons operating in those waters.[73]

Outside of these regions, the blockade was much less effective right to the end of the period of sailing navy. The extensive coastlines of North, Central and South America, the East Indian archipelago and India were largely devoid of appropriate supporting facilities and adequate manpower to man large numbers of small vessels. The British attempt to use naval power to force the American colonies to obedience after 1763 failed miserably despite the fact that the Royal Navy faced no significant maritime challenge.[74] The Mediterranean and the Baltic saw large fleets of warships attempting to blockade ports during the period, but the confined and shallow Baltic waters made the interception of coastal traffic very difficult. The first great Russian naval victory over the Swedish fleet, the Battle of Hangö Head on 6 August 1714, was won by a galley fleet making use of the coastal shallows to outmanoeuvre the Swedish sailing fleet.[75] In the Mediterranean, the extent of coastal shipping was vast. Some limited actions, such as the blockade of Sicily by the French in 1678 or the British in 1718–19 were successful, but, in general, British, French, Spanish or Turkish warships were too few and based at too great a distance from many entrepôts to which merchantmen could make their way to have a decisive impact on trade.[76] For most of the period under consideration the practical problems of engaging in a trade blockade based upon squadrons of large warships were too great to be considered a reasonable employment of the state's resources.

Britain was probably alone in that a trade blockade converged with policies that were essential for its own survival–defence of its own trade and territorial integrity–and thus possessed the political will to develop the resources that made such a blockade possible.

Likewise, the other decisive means of destroying the enemy's trade, the capture of the trade terminus, was also a maritime operation that required enormous and highly sophisticated naval resources. Sometimes this might be achieved by relatively local operations. The capture of Bristol by the Royalists in 1643 deprived parliament of substantial overseas trade revenues.[77] The British attempt to burn Lorient in 1746 was designed not only to divert troops from Flanders but to destroy the stocks, facilities and ships of the French Compagnie des Indes.[78] In the Mediterranean, the Ottoman capture of Candia (Iraklion, Crete) in 1669 destroyed part of the Venetian trading network.[79] However, by the mid-seventeenth century, the defences of most European ports made an attack from the sea by relatively small landing forces extremely hazardous. Most attempts to take commercial ports had to be done outside of Europe. From the 1650s, Dutch, French and English expeditions were sent to the Caribbean to seize the plantations but met with limited success until the 1750s. The expense and complexity of such amphibious operations was so great that it was only the British that developed the capacity to undertake them in adequate force and number to have a major impact on European strategy. Britain's ability to do so was the result of over 100 years of administrative and naval development from 1650. It involved an investment in naval forces unmatched by any other power and the integration of a "blue water" dimension into the strategic thinking of ministers that was equally unmatched. The difference between Britain's capabilities and those of her rivals was becoming apparent by 1746, when British forces could be switched confidently from an attack upon Canada to an assault upon Lorient without much difficulty. The expedition achieved very little, but returned intact. At the same time a French expedition to ravage the British North American colonies, under the Duc d'Enville, was assembled only with the greatest difficulty and met with disaster at the hands of the weather and disease.[80] The French revival after 1763 enabled French naval forces to pose a threat to British ports in North America and the West Indies from 1778 to 1782, and they had some significant successes. The threat was revived briefly during 1794, but by then the effort of mounting a long-distance threat over a prolonged period was beyond the weakened French navy, while British forces extended their amphibious capabilities to South Africa, South America and the Indian Ocean. Throughout the eighteenth century, Spain's defensive capacity in the Americas was far greater than the British believed, but her ability to act offensively against British North American ports was extremely limited.[81]

The same problems underlay the difficulty of intercepting trade by taking a position close to the enemy ports. From 1704 the English and Dutch occupied Gibraltar, close to Cadiz and the mouth of the Guadalquivir, on which stood Seville, the home port of the Indies trade until 1717. The proposers of the Scottish Darien Company, on the Isthmus of Panama, hoped to exploit their position astride the route of the Spanish *galeones* fleet from its port in Cartagena de las Indias to the fair at Porto Bello. Despite its failure, it was a plan revived in 1739. In 1742 it was hoped that the occupation of the island of Rattan in the Gulf of Honduras would enable the British to control the trade in that region.[82] In 1761, the British occupied Belle Isle as a station that threatened French trade routes from Brest to Rochefort.[83] Although Gibraltar became an important base from which to project naval power into the Mediterranean, none of these possessions enabled a fleet to block enemy trade. Apart from Gibraltar, they were too open to attack and recapture because they were so close to the ports and trade routes of the enemy to warrant exceptional attempts to hold them. Darien was abandoned in 1702, Rattan in 1748 and Belle Isle in 1763.

The most effective and efficient means of attacking enemy trade for most powers was to imitate the pirates against whom the standing navies had originally been organized. Small ships operating singly or in groups and attacking enemy shipping wherever they could pose a real threat to merchants everywhere. The use by the crown of private shipowners to damage a rival in peace or war had a long history.[84] During the sixteenth century both the numbers and destructive power of these private warships grew. By the early seventeenth century, French, English, Flemish and Dutch ships, privately owned but sponsored by their governments, infested European and Caribbean waters. As the century progressed, these ships became more clearly part of the state's naval weaponry as the legal basis of privateering became more precise. The interrelationship between the growth of privateering and the power of the states' battlefleets is complex and unclear. The undertaking of a privateering venture depended on the decisions of the merchant community which, as Patrick Crowhurst has shown, was often the result of other, peaceful trading ventures being closed off by enemy naval forces. However, once committed to privateering these small private warships were not easily dealt with by the large battleships. By the mid-1690s privateers from French Atlantic ports, particularly St Malo and Dunkirk, were a major threat to Anglo-Dutch commerce.[85] The political impact of this threat, compelled the English government to commit resources to the defence of trade, diverting ships to act as convoy escorts and as cruisers to hunt down these privateers. In France the impression the privateers made upon the Anglo-Dutch war effort stimulated a gradual shift from employing naval resources as battlefleets

(*guerre d'esquadron*) towards supporting the war on trade (*guerre de course*). The great engineer, Vauban, put his weight behind a shift in naval policy towards a concentration upon attacking commerce.[86] This did not mean abandoning the large battleship. The allied convoys presented larger targets for commerce-raiding squadrons. The most dramatic result of this shift was the Comte de Tourville's attack upon the allies' Smyrna convoy on 17 June (o.s.) 1693. This valuable convoy to the Levant was caught by Tourville's squadron off the coast of Portugal–possibly 140 merchant ships were captured or destroyed, as well as eight warships. The booty amounted to about 30 million livres, as much as the total budget for the navy in 1692.[87]

It had long been understood that the military capacity of the United Provinces depended upon the trade receipts which underpinned the developing Amsterdam capital market. While the choke points of this trade were the North Sea and the Sound, convoys and their protection by battlefleets against powerful enemy battlefleets were the key features of a war. The massive sea battles of the three Anglo-Dutch Wars between 1652 and 1674 were fought to protect or cut off these routes. However, a similar war against English or French commerce was more difficult. The length of the French Atlantic seaboard and the options for English trade to enter the western ports made control of the choke points by a battlefleet more difficult. Violent Atlantic gales and the distance from the ports for resupply made cruises by the battlefleet more dangerous and less likely to exert effective pressure on commerce. Furthermore, the expansion of commerce, particularly the growing importance of the American trades, extended the sea areas over which merchant vessels were spread. The Anglo-Dutch military ambitions in the Mediterranean also expanded the areas for naval conflict. It became increasingly clear that the larger sea areas to be covered did not require large, expensive and potentially vulnerable battlefleets to patrol. The war on trade or lines of communication provided a policy option for states involved in naval war. The crown's warships could be used more effectively in smaller numbers as raiders upon this trade or in disrupting communications. They could also protect trade against the smaller privateers. For these purpose the extremely heavily armed battleships were unsuited. Since the 1670s English shipbuilders had been questioning the value of the increasing size and the weight of guns on warships and the building programme of 1677 focused on creating larger vessels for improved seakeeping, rather than more heavily armed ships. In the 30 years up to 1700 there was considerable debate and experimentation in warship construction, and finally, in 1699, a new standard establishment reduced the firepower of the ships in favour of internal strength and stability. There was a move away from the largest warships of 100 guns or more towards the more versatile 60 to 80-gun ships.[88] Although France

never abandoned the idea of a battlefleet, her naval activity was not exclusively aimed at achieving a controlling maritime position by its use. From 1695 French battleships were used in conjunction with privateers to attack allied convoys or to convoy supplies to allies. After 1704, until the end of the War of Spanish Succession (1701–13) French battleships seldom ventured out as a fleet seeking battle with the Anglo-Dutch fleet. In 1708 a force under the Chevalier de Forbin sought, unsuccessfully, to deliver aid to the Jacobites in Scotland. It was, however, in conjunction with privateering interests that the navy made its most significant contribution when, in 1712, royal warships and privateers undertook the successful attack upon Rio, under the command of the famous privateer, René Duguay-Trouin.[89]

If France, the most wealthy country in Europe during this period, was ambivalent about the value of significant naval investment, it is not surprising that other countries were equally uncommitted. The war on trade or on communications could be maintained with relatively small investment and administration. French, Spanish, Dutch, American and British privateers, as well as North African corsairs and pirates of all kinds in the Caribbean and Indian Ocean, played an important part in naval warfare during this period. In terms of damage done to national seaborne commerce, the *guerre de course* was probably more effective than the dramatic periodic clashes of national navies. As late as the 1790s it was possible for President Thomas Jefferson to consider that the *petite guerre* of the small commerce raider and a mass of coastal defence brigs could defeat the maritime and amphibious power of a major battlefleet.

By this time, however, Jefferson's views were out of date. The Anglo-American War of 1812–14 proved him to be wrong, but this should not disguise the fact that it was only gradually that the *guerre de course* had lost its impact in the face of growing formal naval power. How this occurred is of crucial importance to an understanding of the evolution of naval power. During the seventeenth century the battleship had developed as the most potent individual weapon at sea. If it was unchallenged by other battleships, there was nothing to hinder it and, in its protective wake, smaller ships could carry out a range of commercial or military duties. Battleships were, however, expensive and vulnerable to similar vessels, especially if attacked in conjunction with fireships. They were difficult to maintain over long periods and at long distances from their ports. They could drive off but not eliminate other smaller, shallow-draughted ships like galleys or frigates. In the North Sea and the Baltic, where distances were limited and plentiful supplies could be found, the battleship dominated the waters. It was in these seas that the largest and most fiercely fought naval battles occurred and the necessity to fight in the line of battle developed its classic form. As the ambitions of the English,

Dutch and later the French expanded across the globe in the last quarter of the seventeenth century, so the battleship became the principal tool of naval power, but always with less effect as its weaknesses were exposed by scarcity of repair facilities and manpower. Thus, at this critical point, at the end of the seventeenth century, there were many reasons to doubt that naval force must inevitably be vested in the battleship. England, alone, had the reasons and a capacity for undeviating and substantial investment in her battlefleet. Since the 1540s, her security depended primarily upon the fleet that would dominate the Channel and North Sea. By the mid-seventeenth century, trade, which underpinned the growing London capital market, had to be protected. There was, therefore, a long-term political pressure for measures that would eventually curb the *guerre de course* and build the world-wide infrastructure that could support the sustained employment of battlefleets on a global basis. Elsewhere the political and economic imperatives were less clear. Perhaps only in Denmark was the battlefleet so fundamental to national security, but even here it was less clearly linked to domestic political aspirations or foreign policy. For France, the world's second great naval power, it was unclear what the value was of their command of the English Channel in 1690 or their ability to reinforce the Irish Rebellion between 1689 and 1692. For Spain, its inability to defend its route to the Americas from the 1670s to 1808 had little practical impact on its policies.[90] For Britain the resources and the will were there to compel policy-makers to make the battlefleet a flexible and effective means of global power. During the eighteenth century this was exactly what happened. Slowly, the British navy developed the infrastructure, technology and techniques to make the blockade and amphibious operations more effective, to make naval battles more decisive, to sustain major fleets in distant oceans and to neutralize the other sources of naval power–the privateer and the galley.

Britain gained an important head-start on her competitors and maintained it throughout the period to 1840. France, Spain, Russia, Holland, Sweden, Denmark and Turkey all had maritime concerns that demanded they compete for naval power for which the battlefleet was vital, but Britain was well advanced in embracing a political ideology that focused upon the battlefleet as its primary military weapon.[91] Although it was only from the 1750s that this ideology was consistently expressed in British military policy, Britain had been developing the maritime infrastructure linked to the financial and administrative resources to achieve it for the previous 100 years. By 1750 the ability of a battlefleet to project naval power across the globe had not been proven. The vulnerability of the *guerre de course* had not been exposed. Both were demonstrated by the conflicts of the second half the eighteenth century. British success in the Seven Years' War (1756–63) showed that she had evolved the means of using naval power to

great diplomatic and military effect. Other naval powers such as France and Spain were forced to reinforce their commitment to seapower. By 1789, these powers, as well as Holland, Russia and Turkey, had significant battlefleets. It was significant, however, that at the end of the wars between 1792 and 1815, only Britain's fleet remained intact and dominated the world's seas. It was a long and slow development. Between 1763 and 1830, battlefleets proved that they could maintain operations in almost any seas and apply decisive pressure. Landings could be made, states supported and large armies effectively supplied. Commerce could be stopped and diplomatic isolation broken. They proved that they could incapacitate the privateers and frigates which conducted the *guerre de course*.

By 1815 the battlefleet had reached the apogee of its contribution to naval force; a contribution that was confirmed at Navarino in 1827. The wars of 1792–1815 were the archetype of Mahan's thesis about the influence of seapower on history. However, it took 150 years from the 1650s for this to become reality. Nor did it last long. The advent of steam, armour plate and rifled artillery once again demanded a slow development of techniques to make their power effective.

In 1650 the battleship was the most potent symbol of the state's power at sea. However, it was not synonymous with the state's view of seapower. Naval force and seapower were formed by and contributed to domestic and foreign policies. Founded on the strength of maritime economies and political exigencies, seapower and navies took many forms. Gradually, the battlefleet developed a global capability and operational flexibility that underpinned the powerful exploitation of seapower. Naval battles became more decisive and their impact more significant as the world opened up to maritime commerce. There were some significant technical changes in warship design. Tactical doctrine was developed and naval forces integrated the battlefleet, cruising warships and amphibious armies. Seamanship and command processes evolved. The infrastructure of support, repair, victualling and manning was established. Operational relationships with allies and with army officers developed. Administrative procedures and personnel were put in place and, most of all, money had to be found to do all these things. How these things happened is vital to the history of the sailing navy. Until they came about, the idea of seapower as global power founded on a battlefleet was only a dream.

Chapter Four

The establishment of the battlefleet, 1650-88

The smooth-bore cannon had been employed on ships since the fifteenth century, yet it was only during the second half of the seventeenth century that it came to dominate the conduct of naval wars. In the 1650s, the cannon was still used, primarily, to oppose or to prepare the way for the boarding of enemy ships. Cannon fire raked the decks of opposing ships, shattered the rigging, masts and spars and made the handling of ships more difficult. It could inflict structural damage on the enemy which made seakeeping difficult and prolonged voyages without repair impossible.[1] Nevertheless, cannon fire seldom sank ships so it was the hand-to-hand infantry combat between ships locked together that was the decisive action. If enemy ships could not be taken by assault, it was possible to destroy them with fireships. For the attacker the best policy was to get in close and overwhelm the enemy by boarding. The defender used cannon fire to keep them at a distance. In the half century up to 1650, there was no agreement over the best type of ship for war. There was no clear advantage of one type of vessel or weight of cannon shot over another. By 1680 contemporaries had no doubt. The heavily armed battleship, with main batteries of 24lb or larger cannons, fighting in line ahead with its colleagues, broadside to broadside against its enemy, had come to epitomize the state's naval power. These years were what Jan Glete has described as "the decisive phase" in the building of national navies.[2]

What brought about this dramatic development? The relationship between technology and operational innovation is complex and obscure even in modern times. The type of information used by historians to explain the relationship in the twentieth century is largely unavailable for earlier centuries.[3] Many records of the growing naval administration have survived, but contemporary records of the process of innovation are not clear or

substantial. Even the battle, the centrepiece of military activity, is difficult to understand clearly. Unlike land battles, which can be pieced together from circumstantial evidence provided by the prevailing topography, sometimes by civilian observers as well as by the participants, sea battles take place in a featureless environment, away from the eyes of observers and are riddled with a terminlogy and craft that did not translate well into diplomatic or political despatches. Even the basic information is sometimes missing, such as the line of bearing of a fleet in action or the wind direction at critical points. Consequently, in some of these battles crucial movements are guesswork or supposition.[4] The less dramatic aspects of naval warfare are even more obscure.

There had been gradual improvements in the rate of cannon fire over the centuries but this hardly constituted solid reasoning for the massive investment in naval forces that was to take place before 1700. Jan Glete has emphasized the fact that there was a close relationship between the growth of the state owned battlefleets and the strongly centralizing nature of states at this time. The developing, centralized nation states had the political, bureaucratic and financial power to create these navies. The driving force that shaped these navies was not a generalized naval arms race, but the aggregation of powerful local interests, the interests of the state and the competence of the bureauc racy.[5] This is undoubtedly true, and goes a long way to explain the coexistence of sailing navies, galley forces and other irregular naval forces well into the eighteenth century. Without the resources of the state, the battlefleet was not possible. Only the state could provide the force to compel seamen to serve, to discipline officers or to provide the finance for the massive expanision of ships or naval facilities. The powerful state was, therefore, a necessary precondition of the battlefleet. It was not, however, a sufficient reason for it.

The battlefleet had to answer a particular need in the naval wars that were fought during the period. Once it had become established as a response to this need, its growth and development probably gained a momentum of its own, fed by the domestic political factors and even regardless of its effectiveness or efficiency as a weapon of naval war.

A key area in these developments was the North Sea–the vital seaway that linked the major maritime markets of the Mediterranean and the Baltic. A sustained conflict exploded here between England and the United Provinces which, more than any previous war, created a focus upon the heavily armed battleship. Just as the trading conditions of Northern Europe suited the Dutch commercial shipping, so they were fortunate that their naval requirements fitted their maritime resources. Their yards had access to plenty of good timber, naval stores and skilled labour, but the shallowness of their esturies and coastlines, made the construction of deep-draughted warships very difficult. Fortunately, the Dutch–Spanish Wars (1568–1604, 1621–48) were fought out principally by small

ships preying on the trade of the enemy. From 1572, the Dutch possessed the only significant deep-water port along the coastline, Brill, which prevented Spain from stationing her large galleons in northern waters. Periodically, Spanish warships escorted convoys of troops and money to Mardyck for the army in Flanders, but they always made their way back to the ports of northern Spain. Meanwhile, small frigates from Dunkirk in the Spanish Netherlands harrassed the merchant vessels upon which the Dutch Republic depended. The Dutch navy was a defensive force, financed by the merchant community to destroy the Dunkirkers and to convoy the trade fleets to the Sound or the Mediterranean or the fishing fleets to the grounds off Norway.[6] Their ships had relatively shallow draft and low freeboard, with keels of up to about 120 feet in length. They carried up to 40 6lb and 12lb cannon, but very few of the more powerful 24lb cannons. In 1650, the largest ship in the Dutch fleet was the *Brederode*, which could carry up to 60 cannons.[7] With little local Spanish trade and the absence of Spanish fleets in these waters, Dutch offensive naval activity took place in the Atlantic, Mediterranean, East and West Indies, largely sponsored by private companies and individuals.

The great potential of the Dutch navy lay in its ability to call upon a large pool of experienced seaman and numerous armed merchant vessels, similar in build to their warships. In August 1639, Don Antonio de Oquendo led a Spanish armada of 67 warships from La Coruña to Mardyck, transporting money and soldiers to the Army of Flanders. Maarten Tromp encountered the Spanish fleet with 17 ships on 16 September. As the Spaniards moved north Tromp fell back before them, staying out of boarding range, but engaged in a destructive artillery duel. By 19 September both forces were damaged and out of ammunition. Oquendo had to put into the Downs for repairs and reprovisioning. While he waited there, he successfully sent the troops and money across to Flanders, but the Dutch naval forces continued to grow as more and more ships joined Tromp. By 21 October Tromp had over 120 ships available to him. The Dutch attack on that day scattered the Spanish warships as they tried to escape the fireships and Dutch vessels. Fourteen Spanish ships were lost or lay grounded, nine ships were battered, boarded and captured, and the *Santa Teresa*, the largest ship in the fleet at over 1,000 *tonladas* and flagship of Lope de Hoces, captain general of the La Coruña squadron, was attacked by eight Dutch vessels and finally burned by a fireship.[8] The Dutch fleet of admiralty and merchant ships confirmed its reputation for aggressive offensive action.

Between 1604 and 1640 it appeared that the North Sea might witness a major change in the balance of naval forces. After 1627, Cardinal Richelieu began building a powerful royal sailing navy by puchasing from the Dutch and financing the development of the

domestic shipbuilding industry. By the time war broke out with Spain in 1635, he had 38 sailing warships stationed on the Ponant.[9] In England, Charles I began to build up his navy, adding ten ships to his fleet between 1634 and 1640.[10] However, the prospects of fleets of large sailing warships cruising in the Channel and North Sea rapidly diminished. Spanish warships were seldom seen in the North Sea after 1639. The Portuguese vessels, which made an important contribution to Spanish naval forces, were lost to Spain after the re-establishment of an independent Portuguese monarchy in 1640. War with France in the Mediterranean and the need to defend the treasure routes to and from Spanish America diverted the majority of Spanish naval resources away from northern waters. Likewise, the French fleet, which had been critically weakened by the Frondes, was concentrated in the Mediterranean and the Atlantic coast of Spain. By 1650, only the English and Dutch navies remained a major force in the Channel and North Sea.

Rather than declining during the 1640s, the English navy had evolved into one of the world's most powerful naval force. At the outbreak of the English Civil War (1642–8), the navy had sided with parliament. Throughout the war the navy had been active in supporting the land campaigns by transporting soldiers and stores, and by depriving the royalists from similar reinforcements. At the end of the war in 1649, Parliament possessed 72 ships, including three warships capable of mounting 70 or more cannons, 18 other large vessels inherited from Charles I mounting between 44 and 32 cannons, and eight relatively new "frigates" with 32 to 38 cannons. In 1650 England embarked on a vigorous building programme. Parliament had launched a further ten frigates, with six more in 1651, two in 1652, ten in 1653 and 12 in 1654.[11]

The vigour of this naval development at the end of the war reflected the importance of the navy to the newly established English Republic. During the war, the navy had not been seriously challenged. Its seamen and officers had gained experience in coastal operations and a great deal of confidence in each other. As the war ended a potentially serious mutiny in the fleet at the Downs was contained and the subsequent expanision of the fleet was carefully managed by parliament to ensure the loyalty of both the officer corps and the men. From 1648 to 1651 the fleet gained more experience as it pursued the small royalist fleet to the Mediterranean and reduced the royalist strongholds in the Scillies, the Channel Islands, Ireland and Barbados.

The administration of the navy had also developed. The day-to-day management of the navy was in the hands of parliament's Navy Committee, which was able to work under the stimulus of war, but not of crisis, until it was replaced by the Committee

Regulating the Navy and Customs in 1649. Although parliament was dominated by landed gentry, these committees had substantial representation from the merchant community, who could provide maritime and commerical experience to the management of the fleet. These men were socially close to the seafaring community. The loyalty of the fleet was partly bought by the increased career prospects that expansion provided for officers who had backgrounds in the Thameside merchant service. These men, "tarpaulins" as opposed to the "gentlemen" officers favoured by the crown, had been alienated by Charles I's policy of favouring courtiers in the 1630s and influenced by City of London and nonconformist religious politics. Many of the seamen came from the same social milieu as these officers and shared their religious and political views. They were also reassured by a markedly more scrupulous attention by parliament to paying them than the crown had been able to do.

The period of the Civil War was also remarkably fertile for ship development in England. During the early seventeenth century, the "great ships" of the sixteenth century with their high freeboard, stern and forecastles, designed to facilitate the boarding of enemy vessels, had merged with lower "race-built" galleons. These galleons were large and equally well armed with artillery, but their reduced upperworks and cleaner underwater lines improved their speed and manoeuvrability. During the war, the largest warships, the three-deckers, that had been built and maintained to display the crown's authority at sea had been laid up. They were no use for chasing royalist privateers, escorting supplies or maintaining a tedious vigil along the coast. Across the Channel, the development of light, relatively narrow, Flemish and French craft, the forebears of the frigate, attracted the attention of the Earl of Warwick, the Lord High Admiral. In 1645, he privately sponsored the building of the *Constant Warwick*. This vessel was narrow and single-decked and had a low freeboard, fine underwater lines and 26 light cannon. She was an excellent sailer and the Navy Committee quickly investigated the application of this design to their current operational problems. However, at the same time, the Committee recognized that there was still a need for the large galleon. They knew that if an invasion fleet was to be halted firepower counted more than manoeuvrability against the lumbering transports. They prevented parliamentary enthusiam for the single-deck warship from reducing all the large vessels to single deckers.[12] Instead, they attempted to marry the lines of the "frigate" with the firepower of the galleon. Their desire to carry more and heavier cannon led to the introduction of a small forecastle and, eventually, a second full deck. It could have been a fatal compromise, but in the event it was not the case. The English frigate-type battleships built in the 1650s were little short in tonnage

of the earlier galleons. They carried as many, if not more, cannons. Yet they retained their narrower, lower profile and although they could not manoeuvre as well as the original single deckers, their agility and armament made them a formidable blend of firepower and manoeuvrability.

At the same time as the Navy Committee was developing the frigate, it also experimented with increasing the size of the guns on ships. The reasons for this are unclear. Brian Lavery speculates that the invention of a new train tackle enabling guns to run inboard efficiently for loading was a major factor. The increased length of the English ships relative to breadth may also have focused attention upon making the broadside the key fighting front rather than the stem or stern. The English had long had a preference for heavy cannons on their ships and the experience of merchantship defence in the Mediterranean against galleys with heavy bow-chase cannons from the 1570s had given English mariners a long training in using heavy artillery at sea.[13] This made the task of boarding English vessels a dangerous and bloody affair. Mediterranean galleys had to fire and board from their narrow stem as the banks of oars precluded a broadside assault. The fighting front was inevitably very narrow and the task of overpowering the enemy crew proportionately more difficult. It was a matter of limited importance therefore to an attacking galley crew as to where the galley made contact with the enemy. In a boarding duel between sailing warships, however, the broadside made much more sense. The fighting front was wider and the opportunities for penetrating the enemy defence were greater. This was particularly so as the heavier cannons were traditionally carried at the stem and stern. By 1649 it was usual practice for an attacking sailing ship to attempt to fight broadside to broadside.

By 1652, the English navy had seamen and officers who were both experienced and loyal to the regime. It had an experienced administration and it was developing a core of distinct fighting ships. These technical changes were by no means fully developed, but they did mark a change from the less well armed merchantship or the less manoeuvrable galleon. However, perhaps the most significant distinguishing feature of the English navy was that it was well funded. The navy may not have contributed decisively to the defeat of the king, but Parliament was well aware that the Republic was under threat from external forces which the navy could deflect. The failure of the royalist blockade of the Thames in 1648, Spain's recognition of the Republic in 1650 and the pressure on Portugal and France to recognize the Republic were all part of the diplomatic impact of the navy.[14] For this the navy was well funded, both by the Commonwealth and the Protectorate, until the final collapse of the Republic's finances in 1658.

The First Anglo-Dutch War 1652–4

Across the North Sea, the Dutch fleet had not developed in the same way. A core of about 40 fairly lightly built and armed warships, ideal for convoys and cruising in pursuit of the Dunkirkers, formed the backbone of the force, with a large reserve of armed merchantmen available to support them. There had been little to cause the Dutch to revise the structure of their naval forces, but a number of actions from 1648 imposed a threat to its operational effectiveness. After the Peace of Westphalia, the Provinces had reduced their expenditure on the navy. The admiralties' storehouses were run down and some of the warships were sold off.[15] The death of William II and the suppression of the office of Stadthoulder ushered in the era of the "true freedom" but it divided the officer corps. Officers like Tromp, who held senior rank, retained a loyalty to the House of Orange, while the Regents attempted to reform the corps as a whole with officers loyal to the Regency. The overall impact of this division is difficult to assess, but it led to some famous incidents. On the day of the Battle of the Kentish Knock, 8 October 1652, the Republican Admiral de With intended to move his flag to Tromp's old flagship, the *Brederode*, but the crew refused to have him aboard and de With had to fight on a converted VOC ship, the *Prinz Wilhem*. After the defeat, de With blamed the supporters of the Orangists for failing to do their duty.[16]

There is some dispute over the impact of the republican form of government upon the effectiveness of the Dutch fleet. Although the mechanics of the English state were not as unified as early historians of the Dutch wars had assumed, and in both the English and Dutch states the administrative machinery linking the central decision-making bodies and the naval administrators who actually had to prepare the fleets was incomplete, there is little doubt that the Dutch were at a disadvantage at the strategic level. Sovereignty lay not with the States General but with the seven provinces. Unanimity was required in the States General on all important policy issues, which led to delay, lack of secrecy and, at times, even hostility and deliberate blocking of strategic options.[17] At the operational level, the local control over the dockyards and shipping resources might have made the five Dutch admiralties more efficient and effective than their English counterpart, which could not effectively oversee the work of the yards from London. Neither state had an effective channel which ensured decisions made at the centre would be translated into action in the dockyards and on the ships. Research is continuing on this vital issue, but a clear-cut English advantage can no longer be assumed.[18]

The causes of the First Anglo-Dutch War (1652–4) are also the subject of fierce controversy. The orthodox view that the war was fundamentally about trade has been

challenged by historians who see the war as the result of factional domestic politics or passionate ideological differences between the English and Dutch.[19] What is clear is that a conflict between these powers would centre on the North Sea and the maritime trade routes. Alliances with other powers might make land campaigns and invasion practicable, but neither England nor the Dutch Republic could sustain adequate land forces on the other's soil to win a decisive victory.

Thoroughout 1650–2, the English maintained attacks upon French trade and warships in retaliation for French privateers acting in support of the royalists. Dutch ships were searched and seized on suspicion of carrying French goods, which led to Dutch attempts to protect their trade. The situation was further complicated by parliamentary legislation. In 1650 foreigners were prohibited from trading with the royalists in the Americas and the 1651 Navigation Act effectively prohibited the Dutch colonial carrying trade. The Dutch responded in March 1652 by fitting out of 150 additional warships. In May 1652, a skirmish off Start Point, in which Captain Anthony Young of the English ship *President* (36) determined to force a Dutch convoy escort to strike their flags in English waters, provided a spark that caused a much more serious battle between General-at-Sea Robert Blake, who commanded the English fleet in the Channel, and Maartin van Tromp, who had been given instructions to defend Dutch vessels from English search. This action off Dover on 19 May, in which Tromp's force of about 42 vessels was received by Blake's ten ships and later by nine reinforcements under Nehemiah Bourne, demonstrated the power of English gunnery. Tromp's rate of fire was far greater than the English, but he was forced to retire with the loss of two ships.[20]

War had by now broken out and English naval resources were directed to destroying the trade and wealth of the Dutch. While letters of marque were given to individual merchantmen to authorize them to seize Dutch vessels, the state's navy was organized to devastate the more valuable convoys. In June 1652, Blake was ordered to intercept the homeward bound VOC fleet which was due to arrive, coming north-about around Scotland.[21] Blake missed this fleet, but succeeded in devastating the Dutch herring fleet off the coast of Scotland, sinking 12 out of 13 of the escorting frigates.

The Dutch objective was to limit the damage to their dispersed merchant marine. Tromp pursued Blake, but bad weather prevented an action and scattered his fleet. This second failure was too much for the Regents, who dismissed him and appointed Admiral Witt de With in his place. Action in the Channel centred around de Ruyter convoying Dutch merchantmen to and from the Mediterranean. Sir George Ayscue, whose cruise in the West Indies and interception of the Dutch Portugal trade had gathered a large

number of valuable prizes, was commanding in the Channel. He had been left with a weak force in the Downs by Blake, but by early August he had moved to Plymouth and gathered a force of about 40 warships.

De Ruyter moved his convoy down the Channel with an escort of about 30 to 40 warships and converted merchantmen. The squadrons sighted each other on the afternoon of 16 August, with Ayscue rushing down from windward upon the Dutch who were tacking up to meet him. The advantage of the windward position was well known to mariners. The effect of the wind, heeling the ships to leeward, exposed the hull of the leeward ship to the fire of the enemy at the same time as making its own guns fire high. The smoke from the cannon also drove inboard on the leeward vessel making subsequent firing difficult. Loading a cannon was a slow process at this time, which also gave advantage to the windward position. If the purpose was to batter the enemy or keep them from closing to board, it was necessary, after firing the broadside, to turn to deliver the opposite broadside. From the windward position the commander could sail down on the enemy at the moment of his chosing, fire, turn to fire his other broardside and then beat to windward out of range to reload. After reloading, the ship could then choose its moment to drop leeward again to deliver its broadsides. On the other hand, if the purpose was to close and board then it was possible to surrender the windward position. After firing the first broadside, the ship could sail past the enemy, move on to the opposite tack on the other side of the enemy to deliver the unused broadside, and thereby force the enemy to divide his fire while other vessels followed the leading attacker to deliver their fire in turn. Once large ships became bogged down in a mêlée with large numbers of the enemy its ability to manoeuvre was limited, exposing it to attack from many directions by fireships and those intent on boarding her.[22]

The exact disposition of the squadrons on 16 August is unclear, but Ayscue and de Ruyter seem to have been intent on closing with each other. Each force was centred upon its admiral. The Dutch, with large numbers of vessels to command, divided their fleet into a number of divisions and further subdivided the divisions into squadrons. Each ship was to follow its leaders and pitch itself into the battle in a position relative to their admiral, whose task was to engage the enemy admiral. The English had developed a similar tactic, initially around a blue and white sqaudron. Once engaged the battle became a mêlée in which ships were to support their leaders in the task of battering and boarding the enemy.[23] Both sides had ships severely damaged, but de Ruyter got his convoy through, although bad weather prevented him pursuing Ayscue into Plymouth.

For the next five weeks de Ruyter cruised in the Western Approaches until shortages of victuals and deterioration of his ships forced him to attempt to slip past the squadron

that Blake was assembling in the Channel. On 2 October de Ruyter arrived off Nieuport and met de With who had come out to meet him. De With's objective was to pass down the Channel and escort the homeward-bound trade back to Holland. To the west of them, in the Downs, lay Blake with a fleet of about 50 ships, including the *Sovereign* and the *Resolution*, both mounting over 80 cannons. The Battle of the Kentish Knock was joined on 8 October. Once again the fleets drove into each other by divisions. By a clever shift of tack, de With managed to isolate Nehamiah Bourne's division, but the manoeuvre with a mixed force of merchantmen and warships that had been at sea for various lengths of time was too ambitious and he split his own forces. This permitted General-at-Sea William Penn's squadron to get in among his vessels at the rear. The heavier English shot and faster rate of fire again seems to have been critical.[24] With little support among his senior officers, de With withdrew the fleet to Holland.

The anger within the United Provinces at the failure to open the Channel was immense. Ships which were already prevented from sailing by the need to proceed in convoy as a defence against privateers were now indefinitely halted. The frustration led to the reappointment of Tromp as de With's senior. Meanwhile, Blake withdrew the fleet to the Downs and prepared to lay the majority of the ships up for the winter. By late November he had between 37 and 41 ships still with him, when on 24 November Tromp appeared off the Goodwin Sands with over 80 warships. In the days that followed, Dutch attempts to close with the English were frustrated by the weather, but Blake recognized that he could not stay there indefinitely. After a rather ambiguous council of war on 28 November, which resolved to avoid battle, he ordered the fleet to try to escape southward, behind the shelter of the Rip Raps and Varne shoals. Tromp followed Blake's straggling fleet down the coast until it was forced out into his path by Dungeness Point. At about 3.00pm the leading divisions ran into one another, Tromp aiming for Blake's ship, the *Resolution*, which led the English fleet out from behind the Varne. As the van collided with Tromp, 20 of the following ships held themselves clear of the battle. The Dutch fleet was also strung out, but in the mêlée that followed, Blake lost five ships and the Dutch one. Blake was forced back and Tromp had opened the Channel to Dutch trade. As the pent-up Dutch merchantmen streamed through to the Western Approaches, Tromp cruised off the mouth of the Thames while he waited for a return convoy.

These first few months of the Dutch War have been described in some detail because they highlight the problems facing states that tried to exert pressure at sea. Both sides recognized that the key to victory lay in the destruction of the enemy's seaborne commerce. Since the 1570s the domination of maritime commerce by Dutch carriers

had made the United Provinces particularly susceptible to economic dislocation by stopping their trade. Similarly, the English Republic depended on the Thames remaining open to trade. The credit provided by the City of London was the basis of parliamentary fiscal policy. The sheer numbers of Dutch vessels made them difficult to defend. During the war with Spain, the privateers based at Dunkirk had forced the Dutch to imitate the Spaniards by organizing convoys for their valuable Baltic, Mediterranean and fishing trades. Although the Flemish privateers had some spectacular successes, the screen of medium-sized Dutch warships was generally capable of deterring privateer attacks. These ships, combined with armed merchantmen, had also proved their ability to counter smaller numbers of large Spanish warships which they met on some very rare occasions.

The war with England proved a very different conflict. The convoys provided attractive targets for English squadrons. England lay across the trade routes to Holland and, as Blake and Ayscue proved, their large warships could easily sweep aside the Dutch escorts. It was not possible to allow the merchantmen to sail individually and thereby increase their chances of evading the English squadrons because the English had also set out a mass of privateers and cruisers that were sweeping up Dutch coastal shipping. To protect the more valuable trades the Dutch had to maintain the convoys, which meant that the Dutch navy had to concentrate upon attacking the English squadrons, diverting them from the convoys. Worse still, the Battle of the Kentish Knock indicated the Dutch were not a match, ship for ship, with the English.

The English were also faced by problems. From the first, the Council of State believed that its fleets could devastate the Dutch convoys and fishing fleets. Although they had some successes during 1652, they had not got a large enough fleet to overwhelm the Dutch at the critical points in their trade. They had little or no impact on Dutch commerce in the Baltic or Mediterranean. In fact it was the English who found their trade brought to a standstill in these regions.[25] Although the English fleet was larger than the Dutch, it had to be concentrated in the North Sea and even then, aggressive Dutch defence of their trade had prevented the English from achieving any lasting success. Indeed, the year ended with Blake concentrating his forces defensively in the mouth of the Thames.

Defence against privateers and the natural geography of the Channel and the North Sea concentrated merchant shipping into small areas which created a situation where squadronal warfare was both a defensive and offensive necessity. This posed a series of problems to the adversaries. In less than a year, the attrition of squadronal warfare had seriously stretched the resources of both states. From the outset of the war, the Council of State was aware that victualling such a large fleet would strain its administrative and

financial resources.[26] By the end of 1652, contractors were hesitating to maintain supplies. Likewise naval stores such as masts, spars, cordage and planking was in short supply. Seamen were deserting or close to mutiny over the failure to pay their wages.[27] The success of the privateering campaign, in which prize money was attractive and there was less likelihood of a bloody encounter with the Dutch men-of-war, was a great lure aware from the warships. It was a tension between the two branches of naval warfare that was to last until the end of the sailing navy period. The Dutch were also suffering similar resource problems with men deserting and the lack of facilities for the large-scale repairs required for the ships after the battles. They also ended the year with a large part of their fleet, under Tromp, wintering at the Ile de Rhé in the Bay of Biscay. This was the rendezvous for the homeward-bound convoys, but it was ill equipped to repair and replenish Tromp's fleet for the homeward voyage.

The conduct of the fleets at sea had also exposed the difficulty of squadronal warfare. The behaviour of some of the captains in the battles fell short of expectations. Seven Dutch captains were imprisoned for cowardice after the Kentish Knock and six English captains were dismissed for failing to support Blake at Dungeness.[28] A large part of the criticism was directed towards the masters of the armed merchantmen, who were suspected of being more interested in preserving their vessels than engaging the enemy. On both sides domestic political suspicions, between Commonwealthmen and Royalists or between Orangists and Republicans, provided an additional reason for thinking that the fleets might not be as loyal as they should be.

Squadronal warfare was, therefore, creating problems for both the English and the Dutch, but the perceived rewards of victory were also considered vital to both sides. With the battleflect defeated, the movement of convoys was extremely hazardous. The threat of the Thames being closed or Amsterdam cut off from the sea created anxiety about the social and financial stability of the great cities which dominated the politics of the states at this time. However, as 1653 opened, the task of getting the fleets to sea, let alone achieving a decisive victory and maintaining an effective blockade, was daunting.

It is clear that during 1652 the battlefleet assumed an importance that it had not achieved before. Since the very beginning of the sixteenth century it had always had the potential to play a decisive role, as the assembling of the French fleet in the Channel ports in 1545 or the passage of the Spanish Armadas in 1588 and 1639 suggested. But on each occasion these had been temporary threats to assist land operations and had ended in the dispersal of the fleets. The Anglo-Dutch War was the first occasion in which the sailing battleship became the prinicipal weapon intended to bring about the successful

conclusion of the war by its own power. At the end of 1652, the outcome was still in doubt, but the importance of the battlefleet was not. Naval history has tended to focus upon the dramatic battles that finally decided the war. What is often missed is why this situation occurred. The battlefleet became important because of its potential to destroy enemy trade convoys. These convoys were necessary because of the effectiveness of privateering. The English privateers had done great execution during 1652, and during the following year, Dutch privateers did not match them, but there was little chance that dispersal of the trade would allow the merchant fleets to continue as normal.[29] It was the threat of the predatory private ship of war that forced merchantmen into convoys which in turn made the battle squadron such a threat to the commerce of these states. Naval warfare, therefore, had two distinct and mutally reliant parts–the battle squadron and the private man-of-war. The first was powerful but inevitably few in number owing to the expense of building and maintaining the vessels. The latter were dependent upon the size of the merchant marine and the inclination of the merchant community but far more numerous. They had been an important addition to the state's ships since the Middle Ages, but their more usual role was to prey on enemy merchantmen, weakening the enemy while enriching themselves. In Northwest Europe this form of economic warfare was devastating to individual merchants, but little more than an irritant to most monarchs and statesmen. The crown's few large ships were built and maintained for home defence and as an expression of the monarch's glory, not for chasing trade or privateers. The crown's battleships could destroy slow-moving invasion convoys in coastal waters, but never hope to catch the nimble privateer or trader.

Some states depended on maritime commerce. In the Mediterranean, pirates and private men-of-war had long since compelled states such as Venice and the Ottoman Empire to operate convoys and cruising patrols. Similarly, in 1565, Spain was forced to establish the Atlantic convoy system for its treasure fleets. In the Baltic, the growth of the Swedish and Danish fleets was partly to defend the maritime trade which contributed so much to royal coffers. Once commerce had been forced into a defensive mass, it became a large slow-moving target which was extremely vulnerable to the small number of large enemy warships. Ultimately, defence depended less upon moderately powerful convoy escort vessels than upon the battlefleet.[30] Without the threat of pirates and the private man-or-war, the need for the battlefleet would have been substantially reduced. However, the study of privateering in the middle of the seventeenth century and its precise relationship to the growth of the battlefleets has been seriously neglected. The period is usually described as one of decline for the private man-of-war. The growing

power of individual battleships gradually precluded it from playing a role in naval combat.[31] While this is undoubtedly true, the private man-of-war was to play an important part in naval warfare as the privateer for another 150 years. It was the persistence of the privateer threat that compelled states to regulate maritime traffic, which in turn created the threat of, and the need for, a battlefleet. Eventually, the mastery achieved by the British fleet over most of the world's seas during the Seven Years War was so complete that the fleet itself was large enough and had enough strategic freedom to become, for a short period, the principal destroyer of enemy commerce.[32]

In 1653, there appeared to be no alternative but to maintain the convoys, the battlefleets and the consequent drain on the state's resources. The outcome of the war would depend upon who solved the problem of using these fleets most effectively and first. In England it was clear that their larger ships gave them a major advantage, but the defeat at Dungeness stimulated the Council of State into changing some of the weaknesses of command, manning and administration. The evident lack of discipline in the fleet was addressed on 4 December 1652, when the Council appointed two generals, Robert Monck and Richard Deane to support Blake in command of the fleet. They were nominally joint commanders. A clearer command structure based around three squadrons–the red, white and blue, each with an admiral, vice admiral and rear admiral–was introduced. A new code of discipline was published, which was to serve as the basic disciplinary code for the next two centuries. Naval officers were put in command of armed merchantmen. To encourage the seamen, new improved pay scales were introduced as was a plan for the care of the sick and wounded. The prize regulations were amended so that seamen would benefit as much from the capture of a Dutch man-of-war as from a merchantman. The naval administration was reformed, giving functional responsibility or specific yard responsibility to the commissioners. To restore the confidence of the victualling contractors the prices parliament was willing to pay were raised. Most of all, parliament made a major vote of supply in order to contine the war.[33]

The Dutch could not respond to the crisis as effectively. They too, made changes intended to tighten discipline. Their greatest problem was the lack of specialist fighting ships, and in February 1653, 30 new vessels were ordered.[34] Although owned by the provincial admiralties, these ships could not be sold without the approval of the States General. They became the first national ships to be controlled by the States General rather than the provinces. None were larger than existing warships, nor would they be ready for this campaign, and they would occupy vital slipways and dockyard labour. Nevertheless, the size of the Dutch shipbuilding industry would assist them in absorbing the demand. The Dutch could call upon seamen from all over Northern Europe, but

the damaging battles of the year created growing difficulties in manning the fleet. Three battles during 1653 were to confirm the weakness of the Dutch position.

In February, Blake was ready with about 80 ships to bar Tromp's return to Holland with the convoy from Rhé. They met on 18 February (o.s.) off Portland. As they beat up from leeward, the English squadrons under Blake, Penn and Monck became separated. The three divisions of Blake's red squadron straggled out as Blake forged ahead of his vice admiral, John Lawson, and his rear admiral, Samuel Howett. Tromp left his convoy of about two hundred merchants and fell down towards the English. Once again, Blake found himself fighting the Dutch squadrons unsupported while the others manoeuvred to join him. For some time it seemed that Blake's squadron would be surrounded and overwhelmed by the mass of the Dutch fleet. However, the more powerful English ships were able to hold their own until Penn and Lawson came up. During the mêlée de Ruyter's squadron was able to get in close to Penn's ships and a vicious battle of boarding and counter-boarding ensued until Lawson's vessels reinforced Penn and drove the Dutch back. The English move enveloped the flank of the attacking Dutch and threatened their convoy, forcing Tromp to break off his attack. Tromp's tactical advantage had again been nullified by Blake's heavy guns. Tromp broke away and over the next three days the two fleets manoeuvred up the Channel. The Dutch ships, running short of powder, shepherded the convoy onwards and by a tremendous feat of seamanship weathered Cap Gris Nez. Tromp finally escaped the English fleet with about half of his convoy.

For the English the near disaster to Blake's squadron did not go unnoticed. The Generals-at-Sea, Blake, Deane and Monck, were experienced soldiers who knew the power of artillery and the dangers of units being exposed to destruction piecemeal. Since the 1620s, commanders with experience of land warfare had tried to impose the order of military formations upon the fleet. Sailing in line abreast, they wanted the ships to present a front like a cavalry formation. Like the cavalry on land, they were difficult to control once committed to a charge and liable to chase a defeated enemy off the field, leaving their comrades exposed to the undefeated enemy units. Instructions emphasized the need for the squadrons to approach the enemy together, in mutually supporting formation of line abreast, and to stay in the fight until the enemy had broken rather than chase individual enemy ships who were pulling away.[35] The advantage of approaching the enemy in a line or "file" behind the admiral was also understood. Ashore the cavalry "caracole" was a tactic to move within firing range, discharge their pistols, wheel around and retire to permit the following cavalrymen to continue the firing. Whether the ships in the line turned in succession on initial contact, presenting their bow-chasers and

broadside in turn, or whether they passed through into the ememy formation, firing as they went, the line possessed considerable disruptive power to the enemy ships at the point of contact.[36]

In defence, the line of broadsides presented a powerful front, like a line of battle on land. In 1638, the Spanish fleet anchored in line at Guetera, ready to receive the attack of the French fleet. As the subsequent battle was to demonstrate, there were formidable obstacles to applying these tactics in practice. The principal tactic for the final destruction of the enemy was boarding. Inevitably, this meant that combat broke down into a series of battles in which chasing and cornering an individual enemy took precedence over the conduct of the battle as a whole. Once in possession of an enemy ship, the surviving victorious crew needed to hold onto two vessels, which made supporting a friend more difficult. The tactic put a premium on maximizing the number of ships in the fleet. Controlling such a large number of heterogeneous vessels, their crews with differing skills, experience and languages, was virtually impossible once cannon smoke and intermingling with the enemy obscured a direct line of sight to the squadron admiral, let alone the commander-in-chief.[37] With support so unpredictable, it is not surprising that the principle means of defence was the individual ship's manoeuvrability. Captains would prefer to move their vessels to the most advantageous position as they saw it, rather than follow their admirals. At Guetera, the Spanish captains were deprived of their manoeuvrability by being anchored in line. Once the French ships had flanked the line, the Spaniards were lost. At the Kentish Knock and at Dungeness there were criticisms of captains who did not engage as the admirals intended and caused substantial losses. To the generals this was an issue of military discipline. On land this was partly achieved by a penal code, but more importantly, by a clear practice of manoeuvre.

The sailing and fighting instructions given by an admiral to his captains were intended to provide the basis for both discipline and the rules of manoeuvre. After the Battle of Portland, the generals-at-sea produced a set of fighting instructions on 29 March 1653 (o.s.). These were not particularly revolutionary, but they emphasized the need for the fleet to manoeuvre and fight in a supportive manner. The fleet must approach the enemy in squadrons, in line abreast with the admiral's squadron at the centre. It was a primary duty of each captain to close up with his commander and keep close in action, blocking any enemy move upon disabled ships. They were not to be diverted from this duty by capturing enemy ships, but they were to burn or sink them "so that our own ships be not disabled or any work interupted by the departing of men or boats from the ships". This was not an instruction to fight in line ahead, but the

clear implication of the instruction is that captains were expected to keep close to their colleagues at all times and, if they were approaching the enemy from windward, they were to approach in line ahead. If approaching the enemy from leeward, they were expected to follow the admiral's order to move into line abreast or ahead. Once in line formation, there was little reason to divert from it as it fulfilled the requirements of the rest of the instructions and presented the enemy with the powerful broadside batteries at the point of contact with the enemy fleet.[38]

The next two battles demonstrated the power of this line formation. The English and Dutch fleets met off the North Foreland, at the Battle of the Gabbard on 2 and 3 June (o.s.) 1653. The details of the battle are extremely sketchy. Both fleets had massed their strength and sought battle. The English fleet lay to windward of the Dutch, but the winds were light, enabling the English to manoeuvre their squadrons without the Dutch closing upon them. Rather than sailing down to meet the Dutch advance, the English seem to have presented their broadsides and put up an intense bombardment as the Dutch slowly closed with them. The damage inflicted put the Dutch at some disadvantage in the mêlée that ensued. The Dutch withdrew in the evening, and on the next day, rather than renew the tactic of bombardment, the English closed with the Dutch to continue the mêlée. The Dutch were badly disrupted, having eight ships sunk and 11 captured before Tromp managed to disengage.[39]

The mêlée had again proved the decisive phase in the battle, but a form of line seems to have damaged the Dutch in the approach and prevented them from carrying out successful boarding operations. In the last major battle of the war, the Battle of Schveningen on 31 July (o.s.) 1653, the line appears to have been a more conscious English tactical formation which was maintained while the fleets passed through each other. Once again, it was in the mêlée that the ships were in danger, as fireships and boarding parties threatened. However, it was the Dutch that again bore the brunt of the casualties. Tromp was killed early in the battle. Between 14 and 26 Dutch ships were burned or sunk while the English lost two, besides many others very badly damaged.[40] The importance of the line ahead is unclear from the narratives of the battle, but it is clear that the English seem to have imposed a discipline upon their captains that increased the advantages they already had in firepower. Although the English fleet was too badly damaged to maintain itself off the Dutch coast, Jan de Witt, the Dutch Pensionary, recognized that there was no chance of successfully fighting the English in the short run and that peace was essential. Negotiations that had been continuing throughout 1653 were pushed forward and the Treaty of Westminster signed on 5 April (o.s.) 1654.

The war had not been a complete disaster for the Dutch, but it had been enough of a shock for lessons to be learned which were reinforced in the years that followed. The English had created a fleet that was consistently capable of inflicting defeats upon the Dutch. During the course of the war, the English fleet had grown from about 70 ships to over 130.[41] They had a vigorous merchant economy that could fit out numerous privateers to impose a constant attrition on Dutch commerce. During the course of the war the Dutch lost about 1,200 merchant ships to the English as well as over 80 warships.[42] Although large, the English fleet was not capable of operating for long as a unit far from its bases on the East Coast, especially if it sustained significant battle damage. Nor could it detatch adequate forces to break the Danish closure of the Sound to English shipping or defend English commerce effectively in the Mediterranean. As a battlefleet, it was restricted to local waters. Nevertheless, in the following years, Cromwell turned detached forces against France and then Spain which began to show important capabilities. English warships captured Acadia from the French in 1654 and a force under Blake devastated French privateers in the Mediterranean, prior to a successful attack upon Porto Farina in Tunis in April 1655. An expeditionary force under General William Penn and Thomas Venables was sent to the West Indies in 1655 where, after disappointment at Santo Domingo, it captured Jamaica. Blake's squadron cruised off Cadiz in 1656 and in September, Richard Stayner captured part of the Spanish treasure fleet as it approached the port. In April 1657, Blake's squadron successfully took Tenerife, destroying 16 Spanish vessels. The presence of an English squadron at Lisbon provided support for continued Portuguese resistance to Spain.[43] English ships assisted the French invasion of the Spanish Netherlands, bombarded Mardyke in 1657 and contributed to the surrender of Dunkirk in June 1658. In the late 1650s the Dutch were again troubled by the English fleet, as English ships shadowed Dutch attempts to preserve the balance of power in the Sound in 1658 and 1659.[44]

The movements of these English squadrons had a great impact in Europe. They were not vast armadas but moderately large forces of powerful ships, well handled and capable of doing substantial damage wherever they could be adequately victualled and stored. A number of lessons were quickly learned by other powers. The most significant conclusion was that the power of the English ship lay in its firepower. In December 1653, a new Dutch building programme initiated a policy for larger ships, armed with 18lb and 24lb cannons instead of the more usual 12lb.[45] All the vessels ordered during 1653 were retained by the States General, thus preventing a repetition of the situation after 1648.[46]

The policy paid dividends as early as 1657. The freedom of commerce in the Baltic had long depended on an even balance of power between Sweden and Denmark. The growth of Swedish power had seriously undermined this balance in the mid-1640s, and in 1645 the Dutch had enforced the freedom of the Sound by sending a fleet into the Baltic. This fleet had stationed itself in Køge Bay, south of Copenhagen, to shepherd Dutch commerce through the Sound. In 1656, the Dutch went much further, when a squadron of 42 ships, including 37 armed with 30 or more cannons, under Wassenaer van Obdam sailed into the Baltic and successfully broke the Swedish blockade of Danzig. Obdam's flagship, the *Eendracht* (68), and the five other ships from the Holland Admiralty were new heavier ships. In 1658, Wassenaer took 41 ships to Copenhagen to break the Swedish blockade of the Sound. The Dutch–Danish fleet met the Swedes off Helsinger on 29 October (n.s.). After an approach in line by the Dutch and Danes, the battle resolved itself into the traditional mêlée. The Vice Admiral de With was killed in the *Brederode* which was captured and burned, but the Dutch broke through to Copenhagen and ended the Swedish hopes of capturing the city[47].

Although Obdam's main concern was the passage of Dutch commerce, the Dutch ships continued to play a vital part in the Danish–Swedish war during 1659. The Swedish occupation of the island of Fynn, which stands between Sjelland and the mainland, forced Obdam to come out of Copenhagen to meet the Swedes in the Fermer Belt on 30 April (n.s.) 1659. The 23 Dutch and three Danish ships bore down from windward upon the 24 Swedish vessels. Both sides seem to have deployed in line, although high seas prevented anything more than desultory cannonading. The Swedes withdrew northeast to Landskrona, leaving a small force to watch Copenhagen.[48] The arrival of an English squadron of 60 warships under Edward Mountagu followed by reinforcements to the Dutch under de Ruyter greatly increased the naval forces in the region. Neither the English nor the Dutch wanted to fight the other, and the war proceeded cautiously until Mountagu left at the end of August. The Dutch were again free to weaken Swedish pressure around the Sound. De Ruyter made an unsuccessful fireship attack on Landskrona, the main Swedish base on the east shore of the Sound. Bad weather aborted his attempt to bombard Kronsborg and Helsingborg further north along the coast. The Dutch also provided the main naval forces for the expeditionary army sent to recapture Fynn. De Ruyter's ships bombarded Nyborg, the main Swedish position on Fynn, leading to its surrender on 15 November (n.s.) 1659. As the war drew to a conclusion following the death of the Swedish king, Karl Gustav, de Ruyter's squadron remained around the Sound as a threat to the Swedes.[49]

This was the first occasion when a non-Scandinavian power had played a decisive role in the outcome of a Baltic war since the mid-sixteenth century.[50] It was evidence that the Anglo-Dutch War had not weakened either of the contestants, but strengthened them in relation to other naval powers. England exercised that increased power in a spectacular way between 1654 and 1658, but was thrown into turmoil by the death of Cromwell and financial exhaustion, leaving the Baltic to the Dutch who had well-established trade and political links in the region. The new Dutch warships, built in the light of experience from the war of 1652–4, were an important step in an escalation in size and firepower. The Dutch experience at the Sound in 1645, the closure of the Channel, the short blockade of the Texel by General Monck between the Battles of the Gabbard and Scheveningen, and the operations in the Sound between 1658 and 1660 proved that battlefleet operations could be decisive at critical communication points.

The other major lesson of the 1650s was the continued importance of privateering. The private man-of-war was less able to withstand the battering of the more powerful warships being built and increasing criticism was being levelled at merchant captains in England and Holland. Yet it was still private warships, acting as commissioned privateers, that caused the real damage to commerce. English privateers had wrecked terrible damage upon Dutch commerce in the war. The Dutch battlefleet had proved incapable of preventing this. In the Anglo-Spanish War (1655–60), English commerce had suffered in the same way. There was very little Spanish trade to prey upon, but Spanish privateers had had plenty of experience during their long wars with the Dutch, Portuguese and French. England lost between 1,200 and 2,000 merchant vessels in the war with Spain–more than she had captured from the Dutch. Despite tremendous pressures, Dutch privateers were active in the Second and Third Anglo-Dutch Wars (1664–7, 1672–4). English privateers, some in Swedish service, were very active in the Swedish–Danish Wars.[51] Spectacular and important as the naval battles were, the real damage to trade and therefore impact upon the willingness to continue the wars was done by the privateers.

Naval power was exercised by a balance between the battlefleet and the privateers. For England, Denmark, Sweden and the United Provinces, the battlefleet was a vital first line of defence against invasion. For all these countries, the battlefleet was also vital to defend their commerce through the maritime choke points of the Channel and the Sound. The fate of the battlefleet was, therefore, a matter of public concern and debate. Defeat could provoke political crisis, as in Holland in 1653. Victory could stimulate awe in diplomatic circles, as did Blake's attack upon Porto Farina in 1657. Defeat could destroy offensive plans, as it did to the Swedes in 1659. Yet on none of these occasions was the battefleet capable of applying the vital pressure to force the enemy to an

advantageous peace. For England and Holland, it was the less noticeable activities of the privateers that altered the balance. The United Provinces could not go on in the face of rising merchant losses in 1654. The English losses to Spanish ships largely cancelled out the dramatic operations of the English fleet by 1658. Swedish, Danish, Dutch and English shipping all suffered in the stalemate around the Sound.

In the following decades, the battlefleet was an essential element in seapower, but its use in conjunction with privateering was the real test of naval operations. The North Sea and Western Approaches were to remain the critical area of naval development as the Anglo-Dutch confrontation continued and, equally important, France entered the lists as a major naval force.

The period after 1660 was one of a general expansion of navies (see Table 4.1), but the growth of the French battlefleet between 1666 and 1670 was unparalleled and provided the base for France to have the world's largest battlefleet by 1675.

France had never ignored the importance of sea power in its struggle with Spain or in the development of its economy, but it was only after the Peace of the Pyrenees in 1659 and the assumption of Louis XIV's personal rule that major resources were committed to building up the battlefleet.[52] Once again, the reasons for this are not easy to establish. The galley and sailing navy played an important role in the Mediterranean against Spain, but Louis was not particularly familiar with maritime affairs, and he almost certainly did not have clear views on what naval power actually was, how it was constituted or how it would contribute to his foreign policy. He did nothing within the court to raise the social status of service at sea among the aristocracy and he was inconsistent in his support for Colbert's measures to develop the navy. It might not have been until

Table 4.1 Ships over 700 tons

	1650	1655	1660	1665	1670	1675	1680
France	14	14	15	25	75	87	83
United Provinces	2	52	51	70	88	73	62
England	32	57	57	69	60	68	89
Sweden	16	13	11	18	20	21	13
Denmark-Norway	14	15	11	16	20	19	25

Source: J. Glete, *Navies and nations. Warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1993), vol. 1, p. 204.

1680, when Colbert took the opportunity of Louis' visit to Dunkirk, that Louis actually saw one of his battleships, the third rate *L'Entreprenant* (50).[53] Louis' contribution to the development and the eventual collapse of the French battlefleet remains contentious. For some historians, he saw the navy as an essential element in extending his *gloire* onto the seas.[54] For others, he had a genuine, although brief, interest in maritime and commerical expansion which was rapidly overshadowed by continental ambitions.[55] However, the expansion of the battlefleet could not have taken place without Louis XIV's consent and perhaps his most significant contribution was to permit the growth to take place under the direction of his minister, Jean Baptiste Colbert.

There is little doubt that Colbert was the key person behind the growth of the French navy, although his own letters rather exaggerate the delapidated state of the navy in 1661. Colbert had been Mazarin's secretary since 1647 and took over responsibility for the correspondence with the ports in 1661. From 1661 he was a leading figure on the new Royal Council of Finances.[56] In 1664 he was appointed superintendent of royal buildings, giving him authority over the crown's manufacturing resources. In 1665 he became Comptroller-General of Finances and took over the administration of maritime affairs, and in 1669 he became minister for the marine. Colbert's primary concern was to ensure strong and stable royal government and within this the building up of crown revenues played a major role. His fiscal and economic measures touched many parts of French society, and he clearly recognized the importance of overseas trade.[57] Colbert was a great observer of the efforts of the English and Dutch. He was ready to copy what appeared to be successful in their wars, but do it faster and larger. He saw the reciprocal relationship between merchant maritime resources and naval power.[58] If the French merchant marine was to be built up to rival that of Holland and England, French naval power was an essential element. Colbert was active, influencing social policy, utilizing diplomatic networks and stimulating financial systems to encourage overseas trade. In 1662 he began sponsoring monopoly trading companies, such as the West India Company (1664) and the East India Company (1664), later the Northern Company (1669) and the Levant Company (1670). Colbert used the tariff system aggressively against the Dutch in 1664 and 1667 despite the Franco-Dutch treaty of 1662.[59] The growth of the French royal navy must be seen in this context. While the Frondes and the demands of the war against Spain and the Barbary States destroyed French naval power on the Atlantic seaboard, the French sailing and galley fleets had done well against these opponents in the Mediterranean. Although the French proved no match for De Ruyter's squadron, which cruised in the Mediterranean during 1657, they had established themselves as the most powerful local forces.[60] Spanish naval competition largely ceased after the defeat of

Luis Fernandez de Córdoba off Barcelona at the end of September 1655. The Barbary States continued to be a thorn in the side of French Levantine commerce until 1665, but, except for the intermittent incursion of the English and Dutch, the French could claim to dominate the western Mediterranean.

On the Atlantic and Channel coasts, however, despite the presence of the major commerical ports of La Rochelle (Canada trade), Nantes (West Indies), St Malo (Newfoundland fisheries), Bordeaux (European trades) and Port Louis (East Indies trade from 1664), France could exercise very little power. Colbert began the gradual build-up of the supporting infrastructure for naval dockyards. Increasing revenues financed the expansion of the navy and throughout the 1660s the numbers of French battleships grew at a dramatic rate. However, the desire for a battlefleet was not based on an abstract notion of numerical superiority over the English or Dutch. It grew in the context of the overall consolidation of the French state and Louis' diplomatic ambitions. Jan Glete has pointed out that the new fleet was probably not primarily aimed at challenging the Dutch or English. No battleship base in the Channel was developed, which would have been vital if blockades of these two powers were to be effective. Rather the decision to develop Rochefort on the Atlantic coast suggests that Louis wanted to use his sea power to resolve his conflict with Spain.[61] Rochefort lay conveniently close to Spain and Spanish routes to the Netherlands. Whereas Glete's interpretation is fully consistent with Louis' anti-Habsburg heritage, it does not necessarily mean that other motives have to be rejected. The great ports for French overseas trade were in Brittany and Normandy, and a battleship base on the Atlantic coast had a strong defensive rationale. At this stage battleships could not operate far from sources of resupply for long. A French squadron operating in these waters might defend the convoys and coastal traffic from English and, particularly, Dutch aggression. The battlefleet provided a stable environment for the expansion of French shipping which was being stimulated by Colbert's fiscal and political measures. Certainly, Louis never got used to using his fleet in an effective offensive manner. He was more concerned to preserve it than risk it in an encounter with powerful enemy forces. In 1666, when the Duke of Beaufort was ordered to sail from Toulon to join the Dutch against the English, Beaufort was ordered not to risk his ships.[62] When the Comte d'Estrées took out a squadron to join the English against the Dutch in 1673, the willingness of the French to risk their battleships was called into question by their English allies. During the 1680s the fleet was used against Spain's ally, Genoa (1684), Spain itself (1685–6) and the Barbary States (1683–7). Action was taken to preserve French honour and commerce and to deter Spanish aggression in Italy, but it was only after 1688 that a change in the battlefleet strategy

occurred and the fleet used to take war to an enemy in circumstances which were not overwhelmingly advantageous.[63] If the battlefleet was essentially a defensive weapon to protect the expansion of French trade, it made sense to develop it near the Atlantic ports. Other factors also played a part in the siting of the new naval yards.[64] The Atlantic coast had long been a source of danger to the French crown. Since the 1620s a great deal of time and resources had been devoted to destroying the independence of the Huguenot enclaves in Brittany. The Frondes had powerful support in the west, and the freedom of the sea gave the rebels a great advantage. The weakness of royal power on the Atlantic coast was, therefore, a major threat. This threat seemed to be rising again during 1660–1, when Nicholas Fouquet, the *surintendant* of finances, appeared to be developing a semi-independent power in Brittany based upon trading companies and naval force. Fouquet's fall in the autumn of 1661 ended the threat but may have reinforced Colbert's determination that the maritime trade of France should come under royal control. The development of the royal fleet in the heart of Brittany was an important mechanism for control of the local economy. The financial speculations of Colbert's agents who were instructed to assess prospective sites were not irrelevant to the eventual decisions. It is also probable that Colbert wanted to extend naval facilities for the battlefleet up the Channel. In 1662 Louis purchased Dunkirk from Charles II and for a while Colbert had hopes of developing the port as "un des meilleurs ports de l'océan". By 1671 it was clear that Dunkirk was too confined and shallow to hold a battlefleet, but Colbert also realized the importance of privateers to threaten English and Dutch commerce and the port was extensively developed as a privateer base.[65]

The expansion of the French navy was a part of the expansion of royal power. Colbert was not a naval administrator like his contemporary Pepys. He did a great deal to establish a powerful naval force and administration, but his prime concern was that the navy should play a role in the overall domestic and foreign policy of the crown. The principal weapons in this policy were the army, diplomatic corps and the administrative machinery of the state. The battlefleet had a role, which led to it becoming the largest royal navy in the world by 1678, but from the French perspective, it was a subsidiary role and one that was linked with the privateers, the galley fleet and the overall development of maritime commerce. By 1677, the size of the French battlefleet seriously alarmed the other maritime powers, but the lack of focus on what the fleet could do and what was required to maximize its effectiveness meant that its performance never matched its potential.

The Second Anglo-Dutch War 1664–7

The Second Anglo-Dutch War, which was formally declared on 4 March 1665, took place against a background of an expanding and volatile maritime economy. While the Mediterranean and Baltic remained the main termini of European trade, the Atlantic economy, including the trade to the East Indies, was beginning a major expansion. The importance of the potential trade receipts which underpinned the embryonic credit systems was not lost on the European powers. Convoying merchantmen or squadronal cruising to deter predators had become a major function of the English and Dutch fleets during the 1650s. In the next two decades these activities expanded beyond the established North Sea/Western Mediterranean axis to more distant waters. There was a gradual need for the battleships to cruise further, longer and in larger numbers. This was to have a major impact upon the cost of navies, the administrative processes by which the fleets were maintained, and how they related to the rest of the maritime community. These changes were, in turn, to have an impact on the maritime balance of power. The Dutch, who were experiencing trouble matching the English battlefleet in local waters, were put under greater strain by the emergence of French naval competition and more determined pressure upon their trade in the Caribbean and the Far East. The French navy, which was developing to meet the challenges of warfare in the Mediterranean and on the Atlantic coasts, was compelled by diplomatic and commerical pressures to develop a more global capability. The English fleet had to preserve its critical role in home defence as well as extend its range of operations. It was a slow and uneven process which had only just become evident by 1678, but by this time it was becoming clear to contemporaries that defence of their expanding maritime interests required massive investment. The results of this investment became clearer in the wars that followed between 1688 and 1697 and 1701 and 1713.

Dutch intervention in the Danish–Swedish War of 1657–60 had preserved the free passage of the Sound, and while a rough balance of power existed between Sweden and Denmark, there was little need to cruise in Baltic waters. Likewise, the lack of organized naval forces in the West Indies or America made it unnecessary to develop susbstantial naval facilities in this region in the 1660s. Only Spain, which had experienced intermittent pirate attacks on its treasure fleets since the sixteenth century, maintained a formal naval presence, the Barlovento Squadron, at Havana. The main focus for naval forces was the North Sea and the Western Mediterranean. English and Dutch naval forces were powerful enough to drive out the opportunist pirates and to counter each other in the North Sea and Channel. In 1664 both countries had small squadrons operating in the

Mediterranean, supported at Spanish ports, chasing pirates and trying to negotiate with the Barbary States.[66]

The expansion of government interest in distant maritime commerce was clear in the early 1660s. Despite a defensive treaty with the Dutch signed in 1662, Colbert was determined to reduce the predominance of the Dutch in maritime commerce. In 1663, he encouraged a project by Antoine Le Febvre de la Barre to recapture Cayenne. He permitted la Barre to establish the Equatorial Company and supported his mission with two royal warships, the *Brézé* (54) and the *Terron* (24).[67]

English interest in grasping some of the profits of Dutch commerce and the West Indies trade centred around the City of London and a group of courtiers headed by James, Duke of York. The precise factors that led to war with the Dutch remain contentious. There were strong anti-Dutch feelings among Anglican Royalists who dominated the Restoration Parliament. They were fearful of Dutch ambitions to replace Spain as the "Universal Monarchy". This hostility was used by James to create a war with the United Provinces which he believed would be profitable and personally advantageous. James had had no naval experience during the Interregnum, but he had been titular Lord High Admiral since birth and had been closely involved in the development of the English navy since the Restoration. Finances were too limited to expand the fleet greatly, but James did a great deal to systematize the administration of the old republican navy and make it an instrument of the crown.[68] His involvement in the Company of Adventurers, which sought to develop the slave trade between the West African coast and the West Indies in competition with the Dutch, provided him with a cause to unite his ambition for profit and his role as operational head of the navy, as well as consolidating the Restoration.[69]

Conflict between traders of different nations was a constant feature of this period, but during 1663 there was a deliberate escalation of deep-seated Anglo-Dutch commercial antagonism. The Company of Adventurers sent out 24 ships to trade for slaves on the African coast, protected by two royal warships under Sir Robert Holmes, an extremely aggressive sea officer who had served as a privateer in the exiled royalist navy.[70] His appointment was guaranteed to create maximum friction between the English and Dutch. Holmes captured Gorée, the centre of the Dutch West India Company's operations, as well as a large number of Dutch vessels. In May 1664, another expedition of three companies of soldiers, with three armed ships and the frigate *Guinea* was sent to North America, under Colonel Richard Nichols, to attack Dutch possessions. In August New Amsterdam fell to the English and in October their settlements along the Delaware were overrun and plundered.[71] At the end of 1664, Charles ordered the capture of Tobago

by forces on Jamaica and he ordered Sir Thomas Allin to capture the homeward bound Dutch Smyrna fleet, which was then approaching the Straits of Gibraltar. Despite this pressure, the Grand Pensionary, Jan de Witt was convinced that the strengthend Dutch navy and resistance of the House of Commons would force the English court to desist. In the meantime, he managed to get the States General to agree to send 12 warships from Holland to restore the Dutch position on the African coast. In more secrecy, he also got agreement to have de Ruyter's squadron in the Mediterranean go to Africa.

Preparations for war were being made on both sides. Sir Thomas Clifford got the House of Commons to vote £2.5 million for 1664–5. De Witt arranged a major loan secured by the VOC. De Ruyter received his instructions to go Africa while off Malaga on 1 September (n.s.) 1664 and on 5 October he sailed out of the Mediterranean with about 23 ships. On 22 October he appeard off Gorée and on the 24th he took possession of the fort.[72] De Ruyter then moved on to take Tacorary, but rumours that Prince Rupert was following him with a squadron caused him to avoid a potentially damaging battle at the main English sugar factory at Cabo Corso (Cape Castle). Instead he sailed to take the post at Cormantyn before sailing for the Caribbean on his homeward journey. An attempt upon Barbados miscarried, with substantial damage to de Ruyter's flagship. After repairs at St Pierre, Martinique, de Ruyter captured a number of English merchantmen on his way to St Eustatius. He then made his way up the American coast, revictualled at St Johns, Newfoundland, and then sailed across the Atlantic. He passed Britain north-about, and evaded the Earl of Sandwich's fleet in the North Sea to reach the River Ems on 6 August (n.s.) 1665. The success of de Ruyter's cruise gave a welcome boost to the flagging morale of the Dutch who were suffering the consequences of naval action closer to home.

War had formally broken out in March 1665. Both the English and Dutch had to fight an offensive war to control the Channel. The Dutch were a little better prepared to fight than during the 1652–4 war. They had the purpose-built "40s" and "50s" ordered during that conflict in service and a few larger 60- to 70-gun vessels built after 1660. However, they still had fewer of the big ships than the English, and none that matched the firepower of the older 80-and 90-gun ships still in English service. Political division between supporters of the Republic and the House of Orange still bedevilled the Dutch fleet. The crew of the *Gouda* (50) refused to fight until the Republic's flag had been replaced by that of the Prince of Orange.[73] The commander-in-chief, Wassenaer van Obdam, was an unpopular republican who had been exhausted by his service in the Sound. Furthermore, the fleet had to be subdivided into squadrons that reflected the political requirements of the contributing provincial admiralties rather than the tactical

efficiency of the force. Although the Dutch had recognized the English tactic of fighting in line of battle at the end of the First War, they did not have the ships to fight a long-range gun battle on an equal footing and had not altered their tactical instructions, which were to close and board in a mêlée.[74] Nevertheless, de Witt was determined to keep the Channel and the North Sea open to Dutch trade.

The English mustered their fleet of over 100 ships off Harwich under the command of the Duke of York, and in late April the fleet put out to cruise off the Texel. The main objective was to intercept homeward-bound convoys and force the Dutch fleet out to fight.[75] After a minor success against a small convoy, James and his council of war decided on 5 May to fall back to Harwich to revictual. On 22 May (o.s.) news reached James that Obdam was at sea with 111 ships, and James moved the fleet up the coast to Southwold Bay to complete the victualling away from the Essex shoals. Obdam cruised towards the English coast, capturing a small convoy of naval stores, before sighting the English fleet on 1 June. The winds and the disordered formation of the Dutch prevented either side from pressing an attack until 3 June, when the wind shifted to the west which enabled the English fleet to steer out with the weather gauge. Over the preceding weeks the English commanders had been working out a very precise order and line of battle, but it proved impossible to manoeuvre from the anchorage into this ideal line of attack. The English held the weather gauge in a broad straggling line, as the Dutch approached as a mass of ships around each of their flags. Rupert led the English line, followed by James and the Earl of Sandwich. After an initial pass, Rupert and James doubled back to prevent the Dutch passing the rear of the English line and gaining the weather gauge. This tactic forced the Dutch to conform to the English line, forming a rough line to leeward and engaging in an artillery duel. Sandwich's division, now in the van, bore down on one section of the Dutch line and shattered a number of ships, leaving them to be burned by fireships. Shortly afterwards Obdam's flagship, the *Eendracht* (73) exploded. The Dutch ships sought support from their flags as both the Zeeland admiral, Jan Evertsen, and the Amsterdam admiral, Cornelius Tromp, flew the flag of the commander-in-chief. By late afternoon the Dutch were in full flight back to their respective admiralties at the Maas and the Texel. The Battle of Lowestoft (3 June (o.s.) 1665) was the worst Dutch defeat in the three Anglo-Dutch Wars. Fourteen Dutch warships were captured and another 18 destroyed with a loss of over 5,000 men.[76] English losses amounted to one ship, the hired merchantman *Charity* (46), and about 800 killed and wounded. The victory was marred by the failure of the English fleet to catch the fleeing Dutch squadrons and the suspicion that one of James' volunteers,

Henry Brouncker, had deliberately given orders to shorten sail in the night while the Duke slept to avoid another savage battle.

The Dutch fleet was in no condition to contest the North Sea again. The Earl of Sandwich was left in command of the fleet to intercept the convoys and de Ruyter. Sandwich failed to meet either de Ruyter or a convoy of VOC ships, but his presence in the North Sea was causing the Dutch merchantmen to postpone the final leg of their passage to Holland. They were collecting in Bergen and Cadiz. Sandwich cruised northwards and attempted an attack upon the rich Dutch vessels sheltering at Bergen. The preliminary negotiations with the Danes, whose co-operation was essential, were mishandled and when Sir Thomas Teddiman attacked on 2 August the Danish forts reinforced the Dutch fire. Sandwich returned to Scotland to revictual with nine rich prizes but without having dealt the crippling blow to Dutch finances that was anticipated.

The demands of the summer campaign and the advent of plague in England crippled the administrative support for the navy. Sandwich took his fleet south to Sole Bay, suffering from sickness and lack of victuals. In early September he was again off the Dogger Bank and the Texel, hoping to intercept de Ruyter who had come out with the repaired Dutch fleet in early August. After capturing a number of merchantmen and warships and suffering increasing sickness among his crews, Sandwich finally decided to return to the Thames on 21 September.[77]

In Holland, Jan de Witt placed de Ruyter in command of the Dutch fleet. He and two deputies sailed with de Ruyter, who was to bring in the Bergen convoy safely to Holland. De Ruyter missed Sandwich's fleet both outward and homeward bound. On his return, de Ruyter was again sent out to blockade the English coast between Harwich and the Downs. Margate was bombarded and the Thames blockaded until 1 November when shortages of victuals forced the Dutch to retire.[78]

In January 1666, the strategic position turned against the English when both France and Denmark declared war on England. The Sound was now closed to the English and access to supplies of naval stores severely limited. Seamen both in England and Holland were in short supply. Embargoes, bounties, increased wages and the press were used to get the fleets seaworthy. In England the victualling system, which had largely broken down by the end of 1665, had still not fully recovered. By the end of May the fleet of over 80 ships was assembled in the Downs under the joint command of Prince Rupert and the Earl of Albemarle. Rumours that the Duke of Beaufort, with 36 warships of between 30 and 74 guns, seven smaller vessels and 15 fireships from Toulon, was approaching the Channel to link up with the Dutch induced a decision on 24 May (o.s.) to detach Rupert with 20 ships to prevent the junction.[79] Thirty ships had already

been detached to the Straits under Sandwich and this further fragmentation of the fleet has been seen as a "great strategic blunder".[80] In the light of Albemarle's subsequent defeat during the Four Days Battle (1–4 June 1666), the discovery that the rumours of Beaufort's approach were false and the fevered political atmosphere of the fleet command, it is not surprising that the division of the fleet was seen as a major error. However, in the context of what was known at the time the decision may not have been unreasonable. The Dutch were thought to be in port at this point. If the French were unchallenged in the Channel, they could chose to ravage English trade unhindered. If the whole fleet went south, it left the east coast and the Thames open to Dutch attack. The sea battle itself was not the objective of the fleet. Ensuring the freedom of friendly merchant traffic and the disruption of enemy traffic was the objective. However small and ill prepared the French squadron was, its intervention had given the Dutch a major strategic advantage. If the English fleet did not move the south coast trade could be devastated–if it did the Thames was threatened.[81]

News of the Dutch being at sea arrived shortly after Rupert had sailed on 29 May. Albemarle decided to move closer to the reinforcements he could expect from the Thames, but was not particularly concerned when he sighted de Ruyter with about 85 warships eastwards from him off the North Foreland. His experience in both Dutch wars suggested that the English were a match for the Dutch. He may have overestimated the power of his 54 ships against the Dutch, who had been reinforced by new 70- and 80-gun warships. Nor did he realize that the Dutch had learned from Lowestoft and finally adopted the line of battle as the ideal formation.[82] Albemarle had the advantage of the wind to concentrate his attack on the rearward Dutch squadron under Tromp before Evertsen and de Ruyter could come up from leeward. This time, both fleets attempted to fight in line, but a manoeuvre to clear seaward by the English threw part of the line into confusion and into the Dutch fireships. On the second day (2 June) Albemarle held his own while the Dutch fleet mistakenly split itself trying to gain the weather gauge. The manoeuvre allowed Albemarle to concentrate his fire once again upon Tromp's squadron before de Ruyter could again form line and attack. Albemarle gradually began his withdrawal to the English coast, which continued throughout the next day. In the evening of 3 June, Rupert finally joined Albemarle. The battle resumed on 4 June, the two lines being disordered but proceeding westward together. By the evening the battle broke off. The English had lost eight ships captured and probably 14 lost, with a total of over 5,000 seamen. The Dutch lost perhaps seven vessels and 2,000 seamen. The rest of the badly battered English fleet returned to the Thames.[83]

The Dutch were able to cruise off the Thames in early July, but Rupert and Albemarle got out to meet them on 24 July (o.s.).[84]The English were determined to fight from the windward position and keep good order. On 25 July, they finally gained the weather gauge and in an exceptionally good line of battle held their position on a converging course with the more ragged Dutch line. The English van and centre were able to concentrate their fire on the Dutch van. By evening the Dutch van had been driven in on its colleagues to leeward and broke off, forcing de Ruyter to follow them. The English fleet chased the Dutch up the Flanders coast and anchored off the Texel on 6 August, in complete command of Dutch waters. On 8 August, Sir Robert Holmes took eight frigates, five fireships, some ketches and the fleet's longboats with 1,200 sailors and soldiers and descended on the mass of Dutch shipping sheltering behind the islands of Vlie and Schelling. About 150 merchantmen were consumed in "Holmes Bonfire".[85]

Despite increasing sickness in the fleet and the replacement of sailors by soldiers, de Ruyter was again at sea with 70 ships during September. His orders were to attack the English fleet in its harbours, and if this was not possible to join Beaufort's squadron before engaging the English at sea.[86] Beaufort was at last said to be approaching Brest, but sickness forced de Ruyter to return to Flanders. Although Beaufort ventured as far north as Dieppe, the retirement of the Dutch caused Louis to order Beaufort back to Brest for safety. De Ruyter himself was too sick to stay with the fleet and de Witt tried to keep the ships at sea under Van Nes for a few more weeks as the English fleet sheltered at Spithead. By mid-October de Witt had to accept that the sickness was endangering the fleet and ordered it back to Holland.

The battles of 1666 had not proved decisive to either side. They had been exhausting to the point that the battlefleets could not keep to sea long after the clash of arms. Both sides had suffered serious disruption and damage to trade. Small English warships and privateers haunted the coasts, while the numbers of Dutch privateers expanded during the autumn to spring as the prohibitions intended to ensure seamen for the fleet were relaxed.[87] Despite a vote of £1.25 million by parliament in November 1666, there was little likelihood of stores being replenished quickly. During October seamen besieged the Navy Office for their pay and in November the workmen at Chatham mutinied.[88] Peace negotiations started in January and on 18 March it was agreed that a conference would meet at Breda in May. Charles II hoped that Louis XIV would pressure his ally to accept terms. In these circumstances, Charles decided not to prepare the fleet for another campaign but to fit out two small squadrons as a summer guard. The result was one of the greatest shocks to the English political psyche.

De Witt was determined to exact revenge for the burning on Vlie and Schelling. His elder brother, Cornelius, was sent aboard the fleet as a commissary from the States General with orders to atttack England. The absence of an English fleet made it possible for de Ruyter to sail on 4 June (o.s.) with the Maas squadron, before the arrival of the Zeeland and Freisland squadrons. On 8 June, Witt sent a small force up the Thames, another force landed on Sheppey, while other ships made their way up the Medway. By 14 June the Dutch made their way back to the North Sea. They had broken the chain at Gillingham Reach and burned the ships that lay near Upnor Castle. The material damage was limited: Canvey Island and Sheppey were scoured for victuals by the Dutch, and about £3,000 of stores were captured when Sheerness fell. One small ship was destroyed at Sheerness. Fifteen other small or older ships and boats were destroyed in the Medway with three major warships, *Royal James* (70), *Royal Oak* (76) and *Loyal London* (90). Apart from these losses, perhaps 150 men were killed in the operation and damage worth £22,000 had been done. Compared to "Holmes' Bonfire", where losses were in excess of £1,250,000, the impact on England was small. The real damage was psychological. The Dutch had been able to penetrate to within a few miles of the major royal dockyard where thousands of pounds of damage could have been done with immeasurable consequences for the fleet. The Dutch had also sailed away with the *Royal Charles* (86) and the *Unity* (44). A Dutch force continued to cruise off the English coast, threatening Harwich and Gravesend and compelling the English to remain in port. De Ruyter took a force southward and landed at Torquay on 18 July, burning two vessels before resuming his cruise into the Western Approaches.

In England and the United Provinces, defeats at sea, especially when followed by enemy landings, had a powerful political impact. De Witt had to weather riots and a crisis in 1666 and Charles II had to face similar hostility in 1667. Unfortunately, victory at sea did not bring proportionate political benefits. Both sides had been straining their maritime economies to the limit to fit out their fleets. The fact that the fleets existed was enough to disrupt the commerce of the enemy. Convoys were bottlenecked at Cadiz, Lisbon and Bergen. Yet victory by a battlefleet had very short-lived effects. In 1665 and 1666 they could not cruise for long off the enemy coast. Nor could they cover enough sea to intercept the convoys with regularity. Both James and Sandwich were singularly unsuccessful in 1665 despite the bloody victory at sea. Likewise de Ruyter, Rupert and Albemarle achieved no long-term dislocation to the enemy in 1666. Even in the exceptionally favourable circumstances of the summer of 1667, de Ruyter missed the Barbados convoy which got safely into Dartmouth.[89] Fleets could not stop enemy privateers and small warships preying on the unprotected coastal shipping. Charles II

relied upon the customs revenues in the absence of adequate parliamentary funding, but French privateers, who joined the Dutch in 1666–7, severely damaged English trade and cut deeply into his financial resources, causing customs revenues to fall to one-third of their prewar level.[90] The fleet could provide some cover for their own commerce by forcing the enemy to divert seamen into the battlefleet. The Dutch were so short of seamen that they could only permit privateers to sail while the battlefleet was laid up for the winter. In 1666 and 1667 the fleet also provided a short-term logistical base for spectacular landings in Holland and England, which had disproportionate political effects but no lasting military advantage.

In essence the battlefleet was a negative factor in the military equation. By their existence they could stop things happening rather than force decisive events. In 1664 rumours of Rupert's imminent arrival off the African coast saved Cape Castle. Rumours of Beaufort's presence forced the English fleet onto the defensive in 1666. The ability of the fleets to recover quickly from a battle, as the Dutch did after Lowestoft in 1665 and the St James Day Fight in 1666 and the English did after the Four Days Battle, also meant that long-term advantage from the bloody battles was impossible. Concentration, repair and revictualling took precedence over operations at sea. The critical difference in 1667 was that the English did not have a seaworthy battlefleet, which enabled the Dutch to divide their forces and cruise further and longer than on any other occasion. The English were disabled but, on the other hand, it did the Dutch little material good. Their revenues were not secure from English privateers and they could not inflict much more substantial damage upon the English. The French invasion of the Spanish Netherlands in May 1667 also worried the Dutch. Both sides desperately needed peace and there was no question of a decisive shift in the diplomatic balance. The Treaty of Breda was signed on 31 July on terms which de Witt had broadly proposed to Charles in May. Long-standing English claims for compensation for ships seized in 1643 and the return of Pularun taken by the Dutch in the East Indies in 1620 were abandoned. The colonial conquests during the war were left in the captors' hands. The English retained the Dutch North American settlements, while the Dutch kept Surinam and Tobago which they had captured in February 1667.

The Franco-Dutch and Anglo-Dutch Wars 1672–8

The Second Anglo-Dutch War had ended in exhaustion and a shift in diplomatic priorities after the French invasion of the Spanish Netherlands. Fears of French expansion brought

the United Provinces, England and Sweden together in a Triple Alliance in 1668, but it did not last long. Only the Dutch had compelling reasons to be alert to French expansion at this stage. Swedish disputes with Denmark, Charles II's domestic financial difficulties and his hostility to the republican Dutch were far greater long-term considerations. On 1 June 1670, Charles II signed the secret Treaty of Dover with Louis, promising 60 ships and 4,000 foot soldiers for a war against the United Provinces in exchange for an annual subsidy of £230,000.[91] Charles had become convinced that an overwhelming French attack would bring England substantial financial and economic gains, which would enable him to pursue his domestic policies with greater freedom.

Charles was aware that it was financial weakness that had crippled English efforts between 1664 and 1667. The Dutch had been able to spend more than twice the English on the war effort in those years.[92] The military lesson of the war seems to have been that victory was determined by the largest battleships. In open waters these ships had been almost impregnable. In a mêlée, they provided a support to the smaller ships in danger of being surrounded and boarded. They had also provided the force to push their way through the mass of Dutch vessels leaving confusion in their wake and the enemy vulnerable to fireship attack. Therefore, despite financial difficulties, Charles embarked on a major expansion of the largest ships in his fleet. He had only one ship capable of carrying between 90 and 100 cannons in 1667, but by 1673 he had added seven more to his fleet.[93] The Dutch commenced a major building programme of "70s" and "80s" in the early 1660s but did not maintain this momentum after 1667.

In France, the preparations made by Colbert were bearing fruit. Six three-deckers capbable of mounting over 100 cannons were built at Brest and Toulon in the late 1660s. Twenty 60- to 80-gun ships were added to the fleet and 24 50- to 60-gun vessels.[94] The organizational problems posed by this rapid material expansion of the fleet could not be solved in the immediate term, but on paper the French fleet expanded to become the largest in the word by the mid-1670s. Louis XIV agreed to send 30 of his warships under the Comte d'Estrées as his contribution to the naval campaign in the Channel.

Louis had prepared the diplomatic ground quite carefully before declaring war on 4 April (n.s.) 1672, and by early May his army swept through the eastern Netherlands.[95] By early June, the maritime provinces of Holland and Zeeland were facing invasion by French forces advancing from the east. De Witt had not been taken by surprise, but had to concentrate all his forces on the collapsing land frontiers. An invasion from the sea could be expected. Sir Robert Holmes had attacked the Dutch Smyrna convoy as it passed the Isle of Wight on 12 March before war had been declared, and de Witt had

little doubt that the English would soon be cruising off the Dutch coast. His main hope was to blockade the English fleet which was assembling in the Thames before it could unite with the French. De Ruyter's fleet gradually came together during the first week of May and was only ready to sail west on 12 May (n.s.), the same day as James took the English fleet south to join the French off Portsmouth.[96] On 19 May, de Ruyter stood off the Galloper sands expecting to give battle in the Channel, but James took the allied fleet further north, hoping to draw de Ruyter into battle in the more open and deeper waters of the North Sea. De Ruyter's force of 85 ships was outnumbered by the allied fleet of 103, and he refused to be drawn, falling back before the allied advance. On 21 May, James led the allies into Sole Bay to revictual and water. At this point, on 28 May, de Ruyter took advantage of a southeasterly wind to fall upon the allied fleet of 82 sail, which was stretched along the coast. De Ruyter's force of 75 approached from the northeast in three massed squadrons. Sandwich's squadron, at the north of the English line, cut its cables and ran towards the Dutch. To the south the French sought sea room by manoeuvring southwards. In the centre, James followed Sandwich. The English were not able to get into line and the battle developed into a fierce mêlée of boarding and counter-boarding. The new large English ships played a creditable part in the battle but could not take advantage of their superior firepower. The Earl of Sandwich was killed in the *Royal James* (100) which was grappled by fireships and burned. James' flagship, the *Prince* (100) was so badly damaged that he was forced to transfer to another of the new first rates, the *St Michael* (98). To the south a separate battle took place between d'Estrées' squadron and a squadron under Bankert. As d'Estrées tried to tack back northward towards the main battle, the two forces were able to form line and fought an artillery duel, with Bankert having the advantage of the wind and more experienced gunners to keep d'Estrées separated from the English.

The battle ended with de Ruyter retiring back to his own coast. The allied fleet was too badly mauled and disordered to follow. De Ruyter had gained vital time for the United Provinces. The allied fleet needed to repair, refit and revictual before it could sail to the Dutch coast. Shortage of victuals and seamen meant that it was the end of June before James was able to sail with about 80 ships to intercept the homecoming VOC convoy, which was rumoured to be heading south towards the Ems estury. De Ruyter had put back into the Schooneveld, an anchorage sheltered by sand banks off the Scheldt. Most of his seamen were drafted to man the land defences, but the safety of the VOC convoy could not be ignored. He was ordered north to try to escort the convoy to the Texel. However, he was ordered not to risk his fleet in battle–while his fleet remained intact, it posed a threat to allied operations. Its destruction, like the

laying up of the English fleet in 1667, would expose the whole coast to attack. In the event, James missed the convoy. A shortage of victuals and serious sickness in the fleet forced him into Bridlington Bay and de Ruyter was able to slip the convoy through to the Texel.

The Battle of Sole Bay may have been "one of the most critical battles of the Anglo-Dutch Wars", but the campaign of 1672 had demonstrated a fundamental weakness in naval power.[97] A mass of powerful warships could be deployed by the allies, but they were extremely vulnerable. Their requirements for stores, victuals and manpower stretched the maritime infrastructure to the limit. De Ruyter's strike at the allies in Sole Bay did not end in dramatic victory or heavy losses for one side or the other, which had become common during the battles of the previous wars. No allied ships were taken as prizes and only the *Royal James* (100) was destroyed, but the general damage done to the fleet was greater than the east coast resources could rapidly put right. As the fleet repaired, so it consumed victuals that became scarcer and the seamen deserted or gradually succumbed to disease. The larger the fleet, the more difficult it was to get it to sea quickly and sustain it there. In 1672, the period for repairs gave the Dutch a vital respite which enabled them to send the seamen to assist the land defences against the French assault, but this was also assisted by the allied decision to concentrate their attentions on the VOC fleet rather than putting pressure on the Dutch coast. After May, the Dutch fleet did not pose a serious threat to the allied fleets in the open sea. Yet James could not turn this advantage to decisive effect. As in the previous war, a major battlefleet could not be sure of hunting down convoys. Timing, the weather and the wind were critical to enable a battlefleet to intercept convoys that had news of their whereabouts. Cruisers and privateers on both sides ravaged the enemy's trade, but could not intercept the powerful East Indiamen or escorted convoys. Trade could be stopped and disrupted, but the capture of the valuable ships and cargoes was a rare event.

The allied objective of the 1673 campaign was to land an invasion force in Zeeland. De Ruyter's force, sheltering in the Schooneveld, posed a threat to the fleet and transports as they made their way into the Flanders shallows. The allied fleet again united off Portsmouth before de Ruyter could intercept them. By 27 May (o.s.), the allied fleet of 76 warships was at anchor off the Schooneveld, watching de Ruyter's 52. On 28 May, de Ruyter came out in line to meet the allies who bore down before the wind on a converging course from the southwest towards his fleet. Rupert led, with d'Estrées in the centre and Sir Edward Spragge at the rear. As Rupert's division clashed with the Dutch van under Cornelius Tromp, d'Estrées failed to keep up, leaving a large hole in

the allied line through which de Ruyter led his and Bankert's division to concentrate on Spragge. The battle developed into a series of vicious, indecisive close actions. The Dutch were able to get back into the Schooneveld without loss to repair their damage, leaving the allies in the offing to repair as best they could. On 4 June, de Ruyter took advantage of an easterly wind to emerge with his repaired and restocked fleet and drive the allies back to their own coast (Second Battle of Schooneveld). While the allies slowly refitted and manned, de Ruyter rode out in the Channel.

Despite superior numbers, the allied fleet failed to maintain a presence in the narrow seas. In the meantime, relationships within the allied command had deteriorated. James had resigned his post as Lord High Admiral on 13 June (o.s.), after refusing to sign the Test Act, but Rupert suspected him of being behind a series of instructions from Charles II which made him doubt the degree of authority he had over his fleet. The performance of the French had also soured relations between Rupert and d'Estrées, while the failure of Rupert to consult with the Duke of Schomberg, the commander of the expeditionary force assembling at Great Yarmouth, led to quarrels within the army and fleet.[98] In the Low Countries, the crisis of 1672 had passed. The Dutch defence of their river lines had been desperate and the political crisis, which brought the Stadthoulder William III to power, had stiffened Dutch resistance further. By the late summer of 1672 Louis had turned his attention to defending his position in western Germany and the focus of the war continued in this theatre throughout 1673.

In July allied attempts to draw de Ruyter out into open water failed to Rupert's increasing frustration (Third Battle of Schooneveld, 22 July (o.s.) 1673). In early August the imminent arrival of a VOC convoy gave the English the opportunity to force de Ruyter out. The fleets met off the Texel on 11 August (o.s.) with the Dutch having the wind from the east. The poor order of the allied line enabled de Ruyter to concentrate his inferior numbers on the English divisions. Once again, the Dutch were able to negate the greater numbers and firepower of the allied fleets by mêlée. The *Royal Prince* (100) and the *St Michael* (98), two of the new first rates, were left shattered by the fighting. The Dutch suffered heavily as well in such close combat with the powerful English ships, but managed to maintain their cohesion until nightfall allowed the forces to drift apart.

Rupert's frustration boiled over at this disappointment. He blamed Sir Edward Spragge, who led the van and had been killed in the battle, for the poor order of the advance to contact and he accused d'Estrées of having secret orders to avoid battle. This latter accusation found a receptive audience in England where a very effective Dutch propaganda campaign had done a great deal to undermine what little confidence

parliament had in Charles' war.[99] The war had not brought the wealth of captured Dutch merchantmen that had been expected, nor security for the Channel by the occupation of Zeeland and the Scheldt estuary. Dutch privateers had been active from July 1672, but when news arrived that Louis had declared war on Spain in October 1673, there was a real fear that English Mediterranean commerce could become victim to Spanish privateers as it had done between 1656 and 1659. Charles found it impossible to obtain the finances to continue the war and on 9 February (o.s.) 1674 he signed the Treaty of Westminster. The Dutch agreed to salute the English flag, but refused to concede the English claim of sovereignty of the narrow seas. They had their fishing rights in Nova Scotia confirmed and retained Surinam, but returned New York which a small squadron had captured in 1673 and agreed to pay a small indemnity.

The Franco-Dutch/Spanish War

With the English exited from the war, Louis was faced with a coalition of the United Provinces, a league of German states including Brandenburg headed by the Hapsburg Emperor, and Spain. On land Louis was strong enough to hold his own, but he could no longer think of distracting the Dutch by invasion from the sea or destroying their maritime commerce. On the Atlantic coast, Louis had only 30 large warships to oppose over 70 Dutch ships. On the other hand, the Dutch took advantage of their superior numbers to spread the naval war out of the Channel.

Small operations had been undertaken in the West Indies during the 1660s, and in 1673 private sponsors in Zeeland and Amsterdam despatched expeditions of six ships under Cornelius Evertson the younger and Jacob Binckes respectively to raid commerce. They had joined at Martinique, recaptured Nevis and St Eustatius, devastated the Chesapeake tobacco trade, recaptured New Amsterdam (New York) and burned the English fishing stations on Newfoundland.[100] Although New Amsterdam was not retained at the Treaty of Westminster, the Dutch realized that the French settlements at Cayenne and Martinique posed a serious danger to their colonies at Surinam and Curaçao. They decided to send an army of 3,386 soldiers with de Ruyter's force of ten warships, 21 flutes, six fireships and two galliots to pre-empt any French attack. To disguise the operation this force sailed in company with a fleet of over 50 warships and a similar number of transports under Tromp, who was to cruise down the French coast.[101] On 11 June (n.s.) de Ruyter left Tromp's force and arrived at Martinique on 19 July (n.s.). Unfortunately, the French had been warned of the Dutch intention and were ready for

them. Ill-discipline among the soldiers and sailors ashore and fierce resistance by the French defeated the attempt and on 25 July de Ruyter's council of war decided to return to Holland empty-handed.

Tromp, meanwhile, had cruised down the French coast. After an unsuccessful attack upon Belle Isle, his sailors captured the little islands of Hoedic and Houet. He also captured Noirmoutier. On his arrival at San Sebastian he was requested by the Spaniards to follow ten French warships that had gone from Rochefort under the Chevalier de Valbelle to reinforce the Toulon squadron off Cadiz. Assured of Spanish provisions, Tromp took 15 line-of-battle ships, the transports and some smaller vessels into the Mediterranean. He cruised up the Spanish coast in search of the French or Spanish fleets, but by the time he reached Barcelona, both forces had gone to intervene in the Sicilian revolt that had broken out in July 1674. In early October Tromp began his return journey to Holland.[102]

During 1675 the naval war spread to the Baltic. In May the Swedes joined France and the Dutch sent a small force under Binkes to support the Danes at Copenhagen. Although the Danes did not declare war on Sweden until August, they covered the Kattegat and the Sound and sent a squadron of 16 Danish and seven Dutch line-of-battle ships into the Baltic under General-Admiral Adelaer. The Swedish fleet did not get to sea until mid-October (n.s.) and was so poorly disciplined that accidents and bad weather prevented it posing a threat to the Danish–Dutch forces. The Dutch were able to escort their trade home and the Danes laid up their fleet for the winter.

In the Mediterranean, France sent support to the Sicilian rebels fighting against Spanish rule. Spanish forces were besieging the rebel stronghold of Messina, supported by reinforcements and supplies from the Viceroy of Naples. The Comte de Vivonne, the General of the Galleys, who also commanded the Toulon sailing squadron, was sent to cut the Spanish supply lines to Naples. He drove off the Spanish ships blockading Messina in early February (the Battle of Stromboli), after which he was able to dominate the Straits of Messina. His support for the Sicilian rebels continued throughout the summer, and his use of combined galley and sailing forces enabled him to extend French influence by the capture of Augusta on 17 August. The unwillingness of the Spaniards to challenge Vivonne led him to despatch 20 of his 29 warships under his second in command, Abraham Du Quesne, back to Toulon to revictual, unaware that de Ruyter was sailing for the Mediterranean with orders to reconquer Messina.

Fortunately for Vivonne, the support that the Spaniards promised to de Ruyter did not materialize. Although the Dutch squadron was careened, repaired and revictualled at Cadiz after a difficult journey, they found that the Spanish squadron at Cartagena

was not ready to join them. De Ruyter sailed on to Barcelona, where he waited for the Spanish commander, Don John of Austria, but the latter's illness and the advancing decay of the sails and rigging on his ships made de Ruyter unwilling to wait much longer. He was promised that six Spanish warships would join him at Cagliari on Sardinia, and that the commander of the fleet at Naples, Montesarchio, would unite with him when he reached Palermo. On 28 November (n.s.), he took his ships to Cagliari, but further disappointments were in store. He had hoped to meet the small Dutch squadron under den Haen which had met him at Cadiz but had become detached on the voyage from Cartagena. Den Haen had sailed for Naples and the six Spanish ships had been lost in a storm. De Ruyter sailed on to Milazzo, about 15 miles from Messina, where he found one Spanish warship and 14 galleys. In early January 1676, den Haen finally joined the rest of the Dutch forces. Almost immediately news arrived that Du Quesne was approaching with the revictualled and repaired French squadron of 20 ships.[103] De Ruyter put out to prevent Du Quesne linking up with Vivonne at Messina. He had 19 ships and four fireships, as well as inshore support from the Spanish galleys.

The fleets met on 8 January (n.s.) 1676 off Stromboli (the battle of Alicuri).[104] Both fleets approached in line and were determined to close with each other. The French line was badly disordered in the approach, obstructing the guns of some of their ships. The Dutch also let their line slip, which would have allowed the Comte de Tourville to double den Haen's division had not the wind dropped. The Spanish galleys were fended off by Tourville, but they played an important part by towing some of the more badly damaged Dutch ships as de Ruyter was forced to fall back into Milazzo and Du Quesne passed on to Messina.

By mid-February, de Ruyter had 17 Dutch warships with him, and was united with ten Spanish warships. The whole force was at Palermo under the command of the Spanish galley commander, de Bayona. The French in Messina had 30 larger warships but were short of ammunition. A Dutch/Spanish seaborne attack on Messina was driven off at the end of March. In April, Vivonne decided to send the fleet out to observe the allies who were lying off Augusta, and Du Quesne took the French fleet south towards Palermo. On 22 April 1676 Du Quesne took advantage of his windward position to fall upon the allies. The advantage of the wind soon weakened, but by this time the vans of the fleets were closely engaged. Once again the lines broke up, with the Spaniards in the centre of the allied line fighting from a distance. Both sides were badly shattered and in the evening Du Quesne broke off the engagement. The Battle of Augusta ended any threat to the city as the Dutch/Spanish forces were forced to bear off to Syracuse to repair. Du Quesne remained off the port for three days before returning to Messina for repairs.

The most significant results of the battle were the death of de Ruyter, who had been mortally wounded, and the opening of the seaways to Messina. Supplies from Toulon and reinforcements of galleys reached Vivonne during May. By the end of the month he felt powerful enough to risk battle again. The allies remained in Palermo, and on 2 June (n.s.) Vivonne sent six fireships into the anchored vessels. Four Spanish and three Dutch warships were burned along with two galleys. Although Vivonne has been criticized for not following up the attack, the allies were seriously weakened. They were forced to strengthen the harbour of Palermo against future attack until Gerard Callenburgh, the new Dutch commander, was suddenly ordered to bring his squadron home. The news of the victory at Palermo was greeted enthusiastically at Versailles. Additional troops were despatched, and the French had the freedom to sail where they wished. Spanish attempts to relieve their forces were defeated by a shipwreck in 1678. However, the French achieved little more by this freedom of manoeuvre at sea and Louis recalled Vivonne on 1 January 1678.

In the Baltic the Dutch had returned to support the Danes in 1676. The Dutch–Danish fleet, under Almonde, met a larger Swedish force off the island of Rügen. The Dutch were far better seamen than their allies, and the Swedes, commanded by Creutz who had never led a fleet before, approached in worse disorder. The result was a confused battle, accounts of which R. C. Anderson, the foremost historian of the battle in English, found difficult to reconcile. It was not fought with vigour by the Danes, which forced the Dutch to retire and left the Swedes in no condition to pursue.[105] Shortly after, reinforcements arrived in Denmark. The allies now had approximate equality in numbers of ships, but a decided superiority in the weight of firepower and disciplined seamanship. The Swedish fleet was ordered to retire to Stockholm, but was caught by the allied fleet on 1 June 1676 off Öland. Once again poor seamanship led the Swedes into disaster. The allies gained the windward position and rapidly started to close on the retreating Swedes. In the van of the Swedish fleet Admiral Uggla saw that battle was unavoidable and ordered the leading ships to tack. This was misunderstood by Creutz in the centre. The *Krona* (126) moved so quickly onto the opposite tack that she took in water through her open gunports and soon foundered. Confusion reigned throughout the Swedish line. Cornelius Tromp, in command of the allied fleet, who brought up the rear of the allied line, saw his chance and drove into the confused Swedes. Uggla's flagship, the *Svard* (94) surrendered to Tromp, but was destroyed by a Dutch fireship before anything could be done. Four other ships were lost in the battle and a fifth, the *Apple* (86), shortly afterwards. The Battle of Öland had been a disaster for the Swedes. It left the allied fleet in command of the western Baltic and in the weeks that followed Danish forces were able to land on Skane and captured Landskrona.

By 1677, the Swedes had few ships and very few seamen in the western Baltic. At Gothenburg, they had eight medium warships but only one mounting over 70 guns. Furthermore, none of the Swedish artillery was heavier than 12lb cannon as opposed to the Danish 18 and 24lb guns. The Swedes ordered the commander at Gothenburg, Sjoblad, to bring his ships up to Stockholm. Unfortunately, he was caught by a larger Danish squadron under Admiral Juel on 31 May 1677. Four of the eight were taken, along with two small ships. The scale of these lossess could not be sustained for long, but the imminent arrival of the Dutch squadron threatened worse. The Swedes felt that they had to act quickly and Admiral General Horn was ordered to the west with a fleet of 22 line-of-battle ships to make an impression before the Dutch arrived. He was met by Juel with 18 similar ships on 1 July at the entrance to Køge Bay. The Swedes were again outmanoeuvred. Horn was forced inshore in the tussle to keep the wind. The *Draken* (64) ran aground and Horn was forced to detach six other ships to protect her while she got off. Juel detached some ships to attack the vessels around the *Draken* and pursued Horn with the rest of his fleet. All six ships around the *Draken* were captured or burned. Juel was only able to come with the rear of the fleeing Swedish fleet, but he captured one more warship. The victory at Køge Bay destroyed Swedish hopes of contesting control of the western Baltic and the arrival of a Dutch squadron consolidated Danish control. However, unlike the previous year, this control did not lead to major changes to the balance of power ashore, apart from the capture of the island of Rügen. The allied fleet raided the Swedish coast, but the Swedes held onto their positions in Skania. During 1678 the Swedish fleet kept to a defensive position in Kalmar Sound and would not be drawn by allied operations on the Pomeranian coast. By 1679 the coalition against Louis XIV had largely made peace with him. The Treaty of Nijmegen (31 July 1678) had concluded the war with the United Provinces. Spain followed in September and the Emperor in January.

The Danes and the Brandenburgers fought on against Sweden. Louis threatened to send a fleet to the Baltic to bring the allies to terms. However, it was Brandenburg's decision to agree to peace which opened Denmark's landward borders to attack rather than the French fleet that finally compelled Christian V of Denmark to agree to terms with France and Sweden by the treaties of Fontainebleu (13 August) and Lund (6 September). Although they gained no territory from the war, their navy had been uniformly successful in conjunction with the Dutch.

The final area that saw significant fighting after 1674 was the West Indies. After de Ruyter's abortive attack on Martinique, no attempt was made until 1676, when Vice

Admiral Jacob Binckes was sent with three line-of-battle ships and six frigates with fireships and transports to raid the French colonies and reinforce Tobago. Binckes captured Cayenne, Marie Galante and St Martin. He then sailed off to St Domingue, hoping to raise a revolt against the French in that colony. Binckes' achievements did not last long as he was followed out by Comte d'Estrées, who left Brest with four "50s" and four frigates on 6 October (n.s.) 1676. D'Estrées recaptured Cayenne, but after reinforcement from Martinique, his attack on Tobago miscarried. Binckes' seamen were mostly ashore, manning the defences, so d'Estrées was able to sail into the bay and grapple the Dutch warships. The battle at close range was an old-fashioned affair of boarding. By the end of the action, virtually the entire Dutch squadron was burning. However, d'Estrées had lost four ships and could not complete the capture of Tobago. Instead, he returned with his battered ships to Brest.

On 27 September 1677, d'Estrées sailed again for the West Indies with overwhelming strength–11 ships of the line, three flutes and three fireships. D'Estrées arrived at Tobago on 6 December, landed his forces and began to construct a battery. A fortunate shot from one of the first shots of the battery blew up the Dutch magazine, killing over 200 men, including Binckes. The fort surrendered shortly afterwards. D'Estrées' next objective was Curaçao. After watering, revictualling and recruiting in Martinique, d'Estrées sailed with his own ships and a small flotilla of local ships for Curaçao. On 11 May 1678 his fleet was off the coast of Venezuela but hopelessly off course when they struck a reef. Almost the entire amphibious force was destroyed. However, the treaty of Nijmegen confirmed French possession of Tobago and Cayenne.[106]

Conclusions

The period between 1650 and 1678 had clearly witnessed the establishment of the battlefleet as a permanent feature of state power. Any doubts that the large, heavily gunned line-of-battle ship was central to victory in battle at sea had been removed. It retained its original purpose–a powerful expression of royal power around which smaller vessels might seek support in the mêlée. It was also gaining another role as the centre of a line of battle, capable of sustaining and delivering extremely powerful broadsides in a more disciplined firefight. The battlefleet's purpose was to destroy or capture concentrations of enemy shipping, be they transports, merchant convoys or an enemy battlefleet. The most remarkable feature of these years was that states were building up their national

fleets and maintaining them on a more permanent footing. In the North Sea, the Baltic and the Mediterranean, competition at sea had become a more constant and consuming activity. Very quickly, therefore, the destruction of the enemy battlefleet became a prerequisite of other functions.

Although states realized that the battlefleet was necessary to compete for a measure of security for their own trade and territory, these fleets did not provide the offensive benefits that was hoped. Battlefleets could delay the arrival of merchant convoys and cause considerable political alarm to enemies, but they seldom managed to capture them and thereby cause significant economic or financial damage. Ever since the late sixteenth century the belief that Spanish power would collapse if she were deprived of American silver was a powerful influence on maritime thinking. The Dutch were known to be reliant on the VOC convoys and the English depended on the customs revenues generated by the Mediterranean, West Indies, East Indies and Chesapeake fleets. Anxiety for these rich fleets was an important factor in the political and diplomatic considerations of all countries, but very seldom did they actually fall prey to the enemy.

There are a number of reasons for this. The primary reason was the balance of naval forces. While an enemy fleet existed, intent on aggressive defence of its convoys, that fleet had to be defeated before cruising for the convoys could take place. Once the battle had been fought and a victory won, the pounding endured left ships too shattered to cruise for long. The Battle of Scheveningen (31 July (o.s.) 1653) was a great victory for the English, but they were left in no condition to exploit it. More often, the victory, like the three battles of Schooneveld (June–July 1673), was not decisive enough to drive the enemy from the sea for long. Repair and refit were more important to the victors than cruising in pursuit of the convoys. Furthermore, the convoys were not easy to find, even in fairly confined waters. While the predatory fleet could wait in the choke points of the Channel, North Sea, Sound or Straits, the convoys were also warned of their presence by a constant traffic of shipping. Watering places such as the Azores, St Helena, Bergen, Cadiz and Lisbon provided collecting points and fairly secure anchorages for the trade to await a favourable time to make their final approach to their home ports. Winds and weather provided a partial defence against the enemy. Even when sighted a convoy might scatter. Some would fall victim to the enemy, but during this period there were usually too few small cruisers to hunt down decisive numbers of the enemy. An effective means to hunting down the convoys was to trap them in port. Blake did this at Santa Cruz in 1657, Crijnsen in the James River in 1664 and Holmes at Vlie in 1666. Sandwich attempted this at Bergen in 1665, Evertsen was sent to do the same at St Helena and the Chesapeake in 1672, Admiral Rooke was to do it at Vigo in

1702. An attack upon a harbour or anchorage was a dangerous action that the battleships were ill-equipped to carry out and smaller ships invariably played important roles. The dominance of the battleship made the attack possible, but was not enough to complete it. The ability to project naval power ashore was to become an important service for naval power, but one that was only in its infancy during this period.

The ideal conditions for a battlefleet was, naturally, the absence of an enemy fleet. After the Battle of the Gabbard in June 1653, the English had over 50 days to cruise for Dutch commerce. In the summer of 1667 the Dutch had freedom to cruise the length and breadth of the North Sea and Channel for over 70 days. Some captures were made, but the great prizes of the VOC or Barbados fleets were still missed. More usually, as during 1665, 1666 and 1672, the cruise time was around one month, not enough, without a great deal of luck, to flush out a rich convoy.

The economic leverage of a battlefleet itself was, therefore, limited. The expansion of the theatre of operations by state naval forces was an obvious response to this limitation, but this could only be done when there was reasonable security in home waters and even then with a limited number of ships because of the refitting, manning and revictualling problems. The route from the Baltic to the Mediterranean marked the domestic sea lanes for most states. For the Dutch the passage of the Sound was vital and they had sent squadrons to those waters since 1656. This force could be well supported by facilities at Copenhagen, so powerful forces could be sent. Likewise Dutch squadrons cruised in the Mediterranean, but with more fragile and intermittent support from Spain, Tuscany and the Barbary States. The English also used the Mediterrranean ports and Lisbon to support small squadrons from the 1650s. Beyond this established route, only small forces could be despatched. St Helena, a watering place for both the VOC and the English East India Company, became a target for small Dutch and English attacks in the 1670s. The fragile settlements in the Caribbean and North America also attracted attacks by small English, Dutch and French expeditions sent out between 1664 and 1678. Substantial damage was done to shipping, plantations and settlements from Surinam to Newfoundland, but very few long-term gains were made by these forces. No European power could sustain even small numbers of battleships over a long period in the Indies. Facilities for careenage, replacement timber, particularly large masts, and replacement crews were not available.

Although the growth of national battlefleets was closely related to the expansion of maritime commerce and its importance to the combatants, the most substantial economic damage was done by the privateers. Colbert, who built up the French battlefleet to be second to none, saw that naval warfare was primarily an affair of economic pressure and

Table 4.2 Ships captured 1665–7 and 1672–4

Captors	Dutch warships	Dutch privateers	English warships and privateers
1665-7			
English merchant ships and cargoes	64	278	
Neutrals and Dutch vessels retaken	21	41	
English men-of-war (sold off)	6	4	
Dutch merchant ships			522
Total	91	323	522
1672-4			
English merchant ships and cargoes	37	285	
French merchant ships	10	171	
English or French merchant ships and cargoes	17	166	
Neutral merchant ships	2	27	
Dutch vessels retaken	5	11	
Dutch merchant ships			500
Total	71	650	500

from the beginning he encouraged "la caprerie" at home and in the West Indies.[107] Royal ships formed a core with which small squadrons of private warships could sail as a predatory group. The Channel, Normandy and Brittany ports, particularly St Malo, fitted out single ships and flotillas that cruised from Cadiz to the whaling grounds of Greenland. The court invested in these enterprises and the names of the privateer captains became famous, none more so than Jean Bart from Dunkirk, whose attacks upon Dutch warships as well as merchantmen between 1674 and 1678 earned him great fame as well as wealth. Despite the crises at home and an embargo placed upon privateering in the summer months in order to man the fleet, Dutch capers wrought substantial damage to English and French shipping (see Table 4.2). The precise figures for captures are impossible to establish, but J. R. Bruijn's work gives a partial idea of the conflict.[108]

Although there is a rough balance of attrition, the activities of French privateers must be added to these figures to get a better picture of the scale of privateering enterprise. It must also be remembered that Dutch commercial shipping stock far exceeded that of France and England and the proportional impact upon these maritime economies was, therefore, different. Furthermore, it was not only the net loss to shipping but also the disruption to the overall trade patterns that was important. The attacks fell upon all sections of the shipping community, not just the wealthy chartered companies. Small and middling merchants could not withstand the impact of these losses in the same way as the investors in the companies might be able to sustain a drop in dividend. It was this threat to the livelihood of the wider merchant community that made the destruction of coastal shipping such a volatile political issue in the United Provinces, and it was the fear of Spanish privateers wreaking havoc upon England's Iberian trade that had an impact on the willingness of merchants to support the Dutch war in 1674. Although the actual destructiveness of the privateers in European waters may not have increased unduly in the 1660s given the expansion of shipping generally, their psychological impact on the maritime communities might have been increased by tales from the Americas, where the wars unleashed an intense privateering war which not only disrupted trade but created spectacular and lurid legends of buccaneering and plunder.[109]

The growth of overseas commerce and privateering during the second half of the seventeenth century was an important element in the evolution of seapower. It was occurring concurrently with the expansion of national battlefleets. The battlefleet was not replacing this older form of warfare but was interacting with it. The battlefleet interdicted the convoys, forcing the trades to sail independently or in smaller groups which in turn were more vulnerable to the privateers. As trade expanded the convoy system also became less effective. The tension between forcing merchants to accept convoys, the need to defend these large concentrations of shipping against enemy fleets and the desire of merchants to sail when it suited their own advantage was to continue throughout the age of sail. The policy of nations changed as the relative effectiveness of their battlefleets and privateers fluctuated. What is clear is that the ultimate ability of a nation to dominate maritime trade by the possesion of an overwhelming battlefleet was not as obvious to contemporaries as it was to nineteenth-century historians and proponents of the battlefleet philosophy. The process by which the battlefleet did become the anchor of an offensive commerce policy is a critical part of the story of seapower, but it had only just started by 1678.

For contemporaries the control of this privateering war was a major concern. Traditional law centred around the Consolate del Mare which recognized that civilians

and neutrals should not be harmed in war, but that they should not assist a belligerent. Neutral property in enemy ships was protected by law. Neutral ships were also protected, but not any enemy property that was carried in them. By the early seventeenth century practice dictated many variations. England, Spain and France all condemned neutral property in enemy ships. The Dutch, who dominated the world's carrying trade, worked invariably to have all property protected on neutral ships–the doctrine made famous by the jurist Hugo Grotius in his *Mare Liberum*, that "free (neutral) ships mean free goods".[110] Over the course of the seventeenth century specific treaties modified the general principles of neutral rights, which were increasingly complicated by the power of belligerent naval forces. These naval forces, battlefleets, cruising squadrons and privateers all placed pressure on the maritime economy. The right of a warship to search neutral vessels, the rights of neutral warships to defend their convoys which might contain enemy property, the definitions of contraband and blockade, all became important legal, diplomatic and military questions after 1650. On the whole, the Dutch insisted upon the doctrine of free ships meaning free goods and they built this into their treaties with Spain (1650, 1676), France (1659, 1678), England (1674) and Sweden (1679). The English gradually moved to this position during the second half of the century and, most famously, accepted the principle in the commercial treaty with the Dutch in 1674. However, French policy had been unequivocally opposed to this since 1543. All property on enemy ships was legimate prize and neutral ships with enemy property were also confiscated. The policy was restated in 1584 and in the famous Ordinance of 1681. Treaty clauses reversed this policy for the United Provinces and Denmark, and between 1744 and 1778 France abandoned the policy of confiscating neutral ships, but it was reintroduced in the latter year and stayed in force until the end of the period. The main dispute throughout this period was over neutral merchandise on enemy ships. Some treaties protected property on enemy ships (Franco–Ottoman Treaty 1604 and Dutch–Ottoman Treaty of 1612), but in general, apart from in France, the position was unclear and the subject of much legal and diplomatic wrangling. Over the course of the eighteenth century the rights of neutrals were to be thrashed out as the practicalities of naval power evolved.

The battlefleet had an important part to play in this, and its role would expand as its capabilities increased, but the wars up to 1678 had not shown these fleets to be overwhelmingly powerful although they had achieved some important political results. The English successes in June 1665 resulted in riots in Holland. The Dutch victory at Sole Bay in 1672 played an important part in preserving the Republic at a time of crisis. The diplomatic effects had been important as well. The Dutch had used their fleet very

effectively in the Sound and Baltic between 1675 and 1677. They had also applied massive pressure on England in 1667. The general failure of the Swedish fleet to match Dutch and Danish naval power was an important feature in the retreat of Swedish influence back into the eastern Baltic. The expanded French fleet had a major influence on the Sicilian War 1675–7 and may have played a part in bringing the Danes to peace in 1678. In the Atlantic the French fleet had a less clear role. It was a significant defence for the ports and trade termini from Normandy southward, which were out of easy cruising range of the powerful Dutch and English fleets, but it was too weak to take the war to those naval powers. That required the junction of forces from the Mediterranean and it could not rely on those facilities in the Channel capable of giving shelter to large battleships. The Atlantic fleet, which may have originated for a defensive purpose, was to have difficulty ever establishing a clear offensive role. The English fleet was unable to replicate the diplomatic influence it had in the 1650s when it was the only major battlefleet, but it did provide a very effective defensive barrier to French and Dutch commerical and military threats. It possessed political support which an army could not do in the wake of the military domination of the Protectorate (1653–60). Although parliament demanded an investigation into the disappointments of 1672–4, the fleet was never in danger of losing the long-term political support of the nation as its principal defensive shield. In 1677, with the threat of a renewed war with France, parliament agreed to the building of 30 new battleships–the biggest building programme to that date.[111] England was committed to the battlefleet, but the issue remained for all nations as to how the fleet could be employed as an effective offensive weapon. The growing importance of transoceanic trade and colonies pointed to an answer, but it depended on resolving a number of problems that the wars between 1650 and 1678 highlighted. At this point the battlefleet was a very fragile weapon. Victualling, refitting and manning had proved obstacles to mobilizing the fleets. Working the ships together involved signalling, seamanship, discipline and a tactical doctrine which had not been consistent in any fleet, particularly when co-operation with allies was demanded. The battleship itself had not proved to be ideal for the roles demanded from it. Technical developments and the evolution of different types of vessels were needed to improve the operational capabilities of the fleet. Finally, the strategic control of the fleets had been inconsistent. The impact of political and professional conflict and governmental decision-making had an impact on the fleets. Ten years after the peace of 1678 another war broke out which heralded an intense period of European warfare which was to last until 1721. These wars were to have a far greater maritime dimension than their predecessors, and by the time they ended the naval capabilities and ambitions of most powers had been

clarifed and a major step had been taken towards making naval warfare a more decisive component of military power.

Battlefleets and cruising squadrons, 1678–88

By 1680, the role of the battleship and the battlefleet was well established. The growth of maritime commerce and the capacity of states to use maritime resources for military purposes had increased the state's willingness to invest in large warships. The state's battlefleet provided the means of breaking up concentrations of enemy shipping, disrupting their commerce and threatening their territories. Expensive though it was, no state which possessed extensive coastlines or valued its maritime commerce could do without the battleship. Even Venice and the Ottoman Empire, which had strong practical and cultural reasons for retaining their galley fleets, made substantial investments in sailing battleships.

The battleship had achieved some remarkable successes in the Baltic, North Sea and Mediterranean, but it had numerous weaknesses. Its operational reach was extremely limited, especially when faced by an enemy fleet. To sustain great damage far from friendly ports was to court disaster. Damage could not be repaired easily, especially to the larger masts, which were vulnerable to both weather and enemy shot. Naval stores and victuals were almost always in short supply which made long voyages difficult. Manpower was perennially lacking in European waters, and the prospect of recruiting in the Americas or the Mediterranean was extremely limited. The large battleships were difficult to handle in shallow coastal waters. An onshore wind could drive them ashore which made the English reluctant to keep their large ships at sea beyond the end of September. The battleships could not hunt out an enemy sheltering in the shallows for fear of grounding and attack by fireships. Although they carried formidable firepower, they were also vulnerable to coastal fortifications. Stone forts seldom carried as many cannons as the battleship, but at a distance from deep water they were steady gun platforms which gave them an advantage in accuracy of fire over the warship. Red hot shot and damage to rigging and masts all increased the danger to the battleship in attacking fortified positions.[112] Battlefleets had disrupted trade, but they had not proved very effective in catching the more valuable merchant convoys. Privateers, armed merchantmen and private men-of-war played a vital role in the capture or defence of the growing volume of scattered independent merchantmen. Furthermore, the expense of these battlefleets was worrying. For England, at least, the expense of maintaining a

competitive battlefleet had proved too much in the 1670s. The Dutch also felt the strain, and although France had easily resourced the expansion of the 1670s, the financial burden was a growing and critical aspect of naval power.

The period between 1679 and 1688 did not place many demands upon the Atlantic states' naval forces, but some activities were indicative of the future. There was increasing anxiety for the expanding West Indies trades. Spain held a monopoly of trade to its empire and the Dutch dominated the bulk carrying trades. Both England and France intended to infiltrate the lucrative markets of Spanish America as well as monopolize trade to their own plantations. Their policies, however, were very different. The established English colonies and growing mercantile marine focused English policy upon diplomatic measures. The Anglo-Spanish treaties of 1667 and 1670 left plenty of room for misunderstanding and local English infiltration of the closed Spanish American markets while allowing England to develop her own plantations in relative peace. For Spain, the limited formal concessions in the treaties encouraged her to think she had English support against the depredations of other powers–a feeling which was reinforced in 1680 by her accession to a defensive treaty with England and the United Provinces. France also followed a policy of infiltration, but its focus was at Seville, where French goods were an increasing proportion of the cargoes loaded onto the outward-bound Spanish treasure fleets. In American waters French policy was more aggressive. Since 1669, Colbert had encouraged a direct assault upon the Dutch carrying trade. The war of 1672–8 had severely damaged Dutch traffic and the small naval expeditions in the Americas, supported by local militias, had shown that disproportionate damage could be done to plantations and trade. Some of the expeditions had failed, but in the previous 30 years, Jamaica, Cayenne, Surinam, St Eustatius and Tobago had all changed hands.

The Caribbean was, therefore, a highly volatile factor in European diplomacy. The great wealth of the Spanish Empire was a prize everybody wanted, and no one could permit it to fall into the hands of an enemy. A major change in the balance of power here would have significant consequences in Europe. War for the spoils of the Spanish Empire would be necessary but highly unattractive. The plantations were exposed, while the sickly climate and the lack of supporting infrastructure for large military and naval forces made the commitment of significant military resources to the region extremely dangerous. Spain was weak and the feeble king, Charles II, was almost sure to die without a direct heir. Sooner or later, the succession issue was going to raise the question of control of the American treasure and trade. Since 1678, England and France were engaged in negotiations concerning neutrality for their American possessions should war occur.

Agreement was reached in November 1686, but with both sides expanding their trade and territories there was little hope of it being recognized.[113] North America was also beginning to require more attention from European statesmen, although French interest in the Mississippi and conflict around Hudson Bay indicated that there was no defined status quo in the region. The prizes were too small to attract the attention that the Caribbean demanded, but the vulnerability of the colonies could not be ignored. Even relatively well-developed societies such as coastal Virginia, Maryland and New York were easily shattered by political factions and subjugated by small metropolitan expeditions. In 1676, a small force of six warships and eight transports under Sir John Berry was sent to the Chesapeake to suppress a rebellion. In the event the rebellion was crushed before the force arrived, but it marked a period in which royal power was effectively imposed on these colonial societies.[114] Although regular forces could be sent to the northern colonies, there were few facilities that could support battleships for long periods. Only Spain maintained substantial garrison or local naval forces. A few small station ships were provided for the English colonies, but it was not until the War of Spanish Succession (1701–13) and its aftermath that European powers began to think seriously of deploying regular land and sea forces in this region.

While there was little desire to extend a permanent naval presence "beyond the line" to the Americas, there were crises elsewhere. In the Baltic and the North Sea there were a series of naval confrontations. In 1680 Brandenburg sent out seven ships to intercept Spanish trade in retaliation for Spain's failure to pay a subsidy promised under a treaty of 1674 in the recent war against France. Three of them were despatched on to a fruitless cruise in the Caribbean, but a Spanish warship was captured in the Channel. Another force sent to cruise off Cape St Vincent in 1681 was driven into the Tagus by a larger Spanish squadron. In 1683, French ambitions in Europe became entangled with Danish–Swedish hostility over the duchy of Holstein-Gottorp. In 1680 the Swedes began building up Karlskrona as a battleship base in Blekinge, a southern province captured in 1658. In 1683 Danish and French squadrons cruised in the Baltic, while a Dutch squadron hovered in the North Sea. The Danes and Swedes mobilized in 1684 as tension mounted, and the Danes mobilized again in 1686 in response to the formation of the anti-French League of Augsburg.[115]

In the Levant a long war erupted when the truce between Venice and the Ottoman Empire came to an end in 1683. Campaigning in the Aegean and the Adriatic involved the movement and protection of armies by galleys and battlefleets. The sailing and oared fleets demonstrated their complementary capability. Galleys provided transport and inshore manoeuvrability to support landings. Battleships proved their worth on a

number of occasions providing offshore protection from attack. Off Mitylene on 8 September (n.s.) 1690, three Venetian battleships fought off an attack by 26 Turkish galleys. Galleys also provided valuable service at Chios in 1695 and Andros in 1696, towing battleships into line when the wind fell, or towing them out of danger when crippled in action.[116]

For Louis XIV, the Mediterranean was a French domain, and his galley and sailing fleets were employed to perpetuate his dominance over Spain and to reduce the depredations of the Barbary Corsairs. In 1681, France, briefly, agreed to the Brandenburg plan to attack Spanish trade.[117] In 1682, 15 French warships were stationed off Cadiz to threaten the returning Spanish treasure ships, as Louis continued to exert pressure to obtain Luxembourg. After Spain declared war on France in December 1683, French ships were sent to bombard her ally, Genoa, during 1684. After the war, which ended in August of that year, French ships were again sent to Cadiz, to threaten the treasure fleet and compel Spain to refund the taxes (*indultos*) levied on French merchants during hostilities. The French were also active against the Barbary States. In 1682, they launched a spectacular attack upon Algiers. A new type of vessel was employed for the first time–the bomb vessel. These sturdy, shallow-draughted ships were equipped with one or two heavy mortars which could fire shells into the town from a safe distance. Naval forces were being developed to project military power ashore. The initial bombardments in July and August were disappointing, but as the gunners got used to their new weapon, they created devastation and panic on the night of 30–1 August. Subsequent actions against Algiers in 1683 and 1688, Genoa in 1684 and Tripoli in 1685 confirmed the vessel as an important addition to the fleet.[118]

The Barbary Corsairs prompted other powers to intervene in these waters. From the 1650s, English squadrons had cruised in the Mediterranean. Although intended to negotiate treaties with the Barbary States and to attack their towns if possible, the main purpose of these squadrons was cruising to protect merchantmen trading to Italy and the Levant. They were supported from Cadiz, Alicante and Marbella. In 1661 English forces took possession of Tangiers as part of the dowry of Catherine of Braganza on her marriage to Charles II. It was hoped that this port would prove a valuable support to English trade, but this proved illusory and the town was abandoned in 1684. For only one year, between 1676 and 1677, were the English at peace with the Barbary States, being at war variously with Tripoli (1674–6), Algiers (1677–83) and Sallie (1684–8). The main forces employed were cruising squadrons based upon the smallest line-of-battle ships, the fourth-rate, 50-gun ships.[119] Their function mirrored that of the battlefleets in the North Sea–they broke up or discouraged concentrations of enemy shipping

allowing merchant convoys to pass with a light screen of escorting warships. The English squadrons were largely unchallenged in the open sea. They played an important part in limiting the corsairs' depredations and protecting English trade. They also had indirect diplomatic and economic effects. Portugal and Spain were forced to be careful in their treatment of English merchants. The protection provided by these warships also lowered the costs of trading to the Mediterranean and thus stimulated a growing number of independent merchants to risk this long-distance trade. Although it did not please the Levant Company, this expansion of English mercantile interest in the region greatly strengthened the position of English commerce in the Mediterranean by 1700.[120] The cruising squadrons also provided an important training ground in diplomacy and independent command for English officers. One of the major problems associated with the growth of navies was the growth of the professional naval administrative and officer corps. Their respective views on the growth and use of naval power were often different, as was their access to political power. In England, the political power of the administrators lay in their closeness to the Lord High Admiral or the Admiralty commissioners. It was power often resented by the naval officers, whose own power with the court was compromised by their absence at sea.[121] The Mediterranean commands gave the senior officers such as Sir John Narborough (1674–6, 1677–9), Arthur Herbert (1679–83) and Cloudsley Shovell (1683–8) an independence from central government authority and the opportunity to forge bonds of patronage between officers which were difficult to break when they returned home.[122]

None of these operations posed great problems to the states involved. Forces were relatively small and expenses were limited, and major successes seem to have been achieved by the cruising squadrons that facilitated the movement of friendly traffic. Offensive operations designed to blockade or damage the enemy, on the other hand, were noticeably less successful. Despite the long history of attacks upon the Spanish treasure fleets, French threats in 1681 and 1685–6 do not seem to have had a decisive impact on Spanish policy.[123] Spain relied on the English and Dutch to honour their treaty obligations and assist her. In this she was disappointed, but the impact of French naval power was limited. Without assistance from the Empire, Spain could do little against French land power in Europe and she was compelled to concede to Louis' territorial claims. However, in strictly maritime terms, Spain was able to resist pressure upon Cadiz and negotiate a satisfactory conclusion to the *indultos* affair. The bombardments of Algiers and Tripoli also produced limited results. A large part of Algiers was destroyed in 1683, but the peace which followed broke down within two years. D'Estrées' bombardment in 1688 shattered the city, but peace still took a year to negotiate. Tunis agreed to a treaty under

threat of bombardment, but was also embroiled in a civil war at the same time. Only Tripoli seems to have found the naval power of France a critical factor. The city rapidly capitulated after the bombardment of 23 June 1685. On the whole, naval blockade and bombardment did not produce decisive results. A critical shift in French policy occurred in 1687–8 when a French squadron of 15 line-of-battle ships swept the Algerian corsairs from the Pas de Calais to the Ligurian Sea. The policy of the cruising squadrons, which the English used effectively in the early 1680s, worked for France as well by the end of the decade.[124] The cruising squadron was a natural extension of the battlefleet role and demonstrated the same strengths and weaknesses. The small battleships did what battlefleets were expected to do–provide a space free of threatening concentrations of enemy shipping. They disrupted enemy mercantile movements. What they still could not do very well was project their power ashore by blockade or direct attack. In calm waters, the galley still provided the best close support for amphibious operations and the bomb vessel made a significant contribution to the destructive power of naval gunnery. Nor could cruising squadrons effectively interdict the independent sailing of enemy merchantmen.

Seapower was neither precise nor overwhelmingly destructive. It could achieve highly significant local results, but it did not have at this time what Mahan later claimed to be its principle strength–the ability to apply "noiseless, steady, exhausting pressure".[125] Whatever the force applied to the Barbary States, they existed by piracy and could not desist from it. It was to take over 150 years before seapower could be applied in devastating quantity to change that basic economic fact.[126] Likewise, Spain relied upon its American treasure, but knew that the pressure applied to Cadiz could only be seasonal–when a treasure fleet was expected to depart or arrive. Cruising off Cadiz for long was not an easy proposition for an enemy squadron. Furthermore, Spain's enemies also had a financial stake in the safety of the treasure fleets. In 1684, France deliberately directed its naval forces to Genoa and not Cadiz because too many French commercial interests were endangered there. Using naval force was, therefore, a complex problem to the seventeenth-century statesman. Colbert, whose main objective was to destroy Dutch commercial and Spanish political predominance, had built up a powerful fleet that achieved those objectives by the crude application of power. His son and successor, the Marquis de Seignelay, had more subtle problems. Applying naval pressure to Spain, the United Provinces or the Barbary States, whose commercial and political positions were already weak, was not easy. French interests could be protected by the cruising squadrons, but the enemy could not be decisively damaged at sea.

The effort required to force Spain to make concessions by naval power was demonstrated in 1686. Frustrated by the failure of more limited actions, Seignelay

decided to launch a large battlefleet, collected from the Atlantic and Mediterranean ports, against Cadiz. The mere threat of such a fleet proved ineffective, which forced Seignelay to order the despatch of the expedition under the Comte d'Estrées. After careful preparations the fleet gradually assembled off Cadiz in May. The appearance of the fleet of 20 battleships, bomb vessels, fireships and transports caused the Spaniards to agree to French terms, but the negotiations continued for another year, during which the threat of the French fleet drifted into the diplomatic background. On the other hand, the effort of mobilizing such a large fleet from so far away had exposed the problems facing French seapower–they needed a long time to unite and had few ports where the whole fleet could anchor, refit and resupply securely. The earlier mobilization against Genoa in 1684 had revealed the poor state of the arsenals and victualling stores at Toulon, Rochefort and Brest and 1686 had been exhausting. Powerful as it appeared, the French battlefleet had many problems.

While all maritime powers focused upon their grand battlefleets as the ultimate weapon that assured security for their commerce and territories, the effort of assembling them was colossal. The detached or cruising squadrons, on the other hand, were well within most powers' capabilities. They had some success, particularly in the Caribbean in the 1670s where they dealt severe blows to the enemy. The power of these forces was limited by disease and the exhaustion of supplies, but was worrying nonetheless. In European waters, the more heavily defended ports were not so easily attacked. Even temporary naval superiority was not so easily achieved and the valuable convoys from the Baltic and Mediterranean were not easy targets. Offensive naval power was, therefore, more limited.

The development of French naval power seems to have reflected this. The Mediterranean fleet, based at Toulon, was a battlefleet, allied to the amphibious capability of the galley fleet at Marseilles, to meet and defeat the Spanish challenge. It was late to develop a policy of cruising. The Atlantic fleet, on the other hand, was much more a cruising force. It was not intended to go north into the shallow waters of the North Sea to seek battle with the Dutch. If it did go on such a mission, it was most likely as an auxiliary of the English. It would fight the Dutch in the Atlantic in defence of its own trade and it would seek out Dutch shipping from Biscay to the Caribbean. Although condemned by Mahan as a "false policy" it was very successful and the prospects looked excellent for the balanced development of French seapower as the dominant battlefleet force in the Mediterranean with a significant cruising and auxiliary squadron in the Atlantic in the 1680s. However, one major event completely changed the strategic role

of the Atlantic fleet and posed a problem for France which was never solved during the period of the sailing navy–the Dutch invasion of England in 1688.

The Dutch invasion of England, 1688

By any standards it was a highly unusual operation. In contrast to the bloody battles of the previous 50 years, this major naval operation took place in the face of a nominally powerful enemy battlefleet without any fighting. It occurred very late in the year and was over within three weeks, without any serious secondary action. War between France and the Hapsburg Empire was becoming increasingly likely during the summer of 1687, and the Stadthoulder, William III, decided the time was right to invade England and take the throne from his father-in-law, James II.[127] William waited until he was certain that he had significant political support in England and that Louis XIV had committed himself to a campaign in the Rhineland in September of 1688. Dutch forces had been assembling throughout the summer in expectation of war: 11,000 foot and 4,000 horse were assembled on 250 merchantmen, while 39 battleships, 26 frigates, 10 fireships and 20 other vessels provided the escorting battlefleet. An important part of the plan was to avoid battle with the English fleet which had been assembling in the Downs since August. Careful plans were laid to avoid a confrontation. Arthur Herbert, a prominent naval officer with a strong following in the English navy, had come over to Holland early in 1688. He was given overall command of the fleet, with instructions to dissuade the English from attacking.

From mid-August James was aware of the Dutch preparations. In early October the fleet of about 37 warships was ready to move to the Nore and the commander-in-chief, the Earl of Dartmouth, joined the fleet. It was expected that William would attempt a landing in the north, but with few sheltered anchorages on this coast the invasion convoy would be greatly exposed to the weather and destruction by a pursuing English fleet. It was expected, therefore, that the Dutch would seek battle before the invasion convoy set sail. For the English, the safest course was to force the Dutch to come to them rather than seek the enemy out on their own coasts in the winter weather. On 15 October, Dartmouth took the fleet to lie securely behind the Gunfleet sands off the Essex coast to await further news. James had some experience of commanding at sea in 1665 and 1672. He was aware of the danger and was ready to advise Dartmouth, but the quality of James' information and his reactions to it have been the subject of some

controversy among historians. On the whole neither James' intelligence nor his performance after September were adequate.[128] Louis XIV also misread the situation. He knew of the Dutch preparations, but he was determined that they should not interfere with his operations around Philipsburg on the Rhine. He offered James the support of the Brest squadron in an attempt to get both the English and Dutch involved in a naval war in the Baltic against Sweden. The plan failed, but Louis had completely misunderstood the significance of the naval preparations in the North Sea and the role his warships could play. French preparations did not match the Dutch so that when William finally sailed the French fleet was in no position to challenge the Dutch.[129]

On 1 November the Dutch force sailed. Its objective was not the north, but the west coast of England.[130] The easterly wind, which had been blowing for some days, continued, pinning the English fleet behind the Gunfleet sands. On 3 November the Dutch passed through the Straits of Dover, and Dartmouth finally got the English fleet to sea. William landed at Brixham in Torbay on 5 November, while Dartmouth reached Beachy Head. Exaggerated accounts of the size of the Dutch fleet and the news that the Dutch had landed caused the English council of war to conclude that an attack would be pointless. Strong westerly winds now forced Dartmouth back to the Downs. It was not until 16 November, with almost peremptory orders from James, that the fleet sailed south again. There was a strong possibility that battle would be engaged as the English reached Torbay on 19 November, but bad weather again induced Dartmouth to retire to Spithead, where he waited until it was confirmed that James II had fled to France and it was prudent to submit to the new *de facto* king of England on 13 December.

The curiosity of the campaign lies in the failure of the English fleet to engage the Dutch at any point. Traditionally, this has been attributed to an Orangist plot within the officer corps. Recent scholars such as David Davies have played down its impact on events and pointed to Dartmouth's natural caution and the very real professional reasons for not engaging the Dutch.[131] The behaviour of the fleet does, however, leave some intriguing questions. What did the naval officers think that their impact on the campaign could be? The decision not to engage because the Dutch had landed suggests that they saw their influence on events as very limited. William did discharge his transports and had no intention of re-embarking, but the Dutch fleet was exposed well to westward of its support.[132] What did they see as the relationship between seapower and events ashore? Disaffection within the army and James' failure of leadership were the critical factors during November. The naval officers decided to wait and see what happened rather than to have an influence upon these factors. Davies has suggested that this inaction was

a reasonable response from career-minded officers who wanted to profit from a change of regime. If this is correct then it is a good example of decisions being informed not by what seapower could do but being motivated by simple political opportunism. Seapower, like any form of power, is largely dependent upon an understanding of its capability and a will to use it. A bold Dutch decision to sail directly to a landing place, inaccurate intelligence and adverse winds put the English at a disadvantage after 1 November. However, it is difficult to believe, in the light of the Dutch Wars and particularly the English failure to invade Zeeland in 1672–3, that the English officers did not understand the limitations of Dutch seapower. They made a judgement about the likely outcome of the land campaign, which they chose not to influence. Ultimately, that was a political, not a military decision. Whether influenced by Orangist plotters, career concerns or immobilized by the political confusion around them, their decision seems to have had two important implications for the perception of seapower. It seemed seapower could be disabled relatively easily and decisively. The English navy suffered from the same paralysis as the army. Neither went over to William with enthusiasm, but both were operationally crippled by internal political confusion. The English army was neither large nor well disciplined by European standards, but the fleet was one of the largest and most professional in the world. There were strong links between the personnel of the army and navy officer corps and it is not surprising that the collapse of morale was similar. However, the break-up of the army and its impact on the campaign was open to doubt much longer than that of the navy. Cut off from political news and less influenced by events in other regions, relatively few decisions made by a small number of officers in councils of war decided the role of the navy. The army crumbled slowly as decisions made by the king, local magnates and individual officers accumulated to overwhelm the Stuart position. The inactivity of the fleet may also have generated the impression that seaborne invasion was much easier than it was. Invasion had not featured particularly in English naval thinking before the 1670s, but it dominated thought thereafter. The battlefleet had grown in the 1650s as an offensive weapon to destroy Dutch commerce.[133] It had evolved to defend English commerce against corsairs and Dutch and French attacks. Detached cruising or expeditionary squadrons had extended its defensive and offensive capabilities to distant waters. In the 1670s, the danger of a French invasion temporarily gave the fleet an enhanced defensive role, but from 1688 the danger of invasion became a prime motivator in its development. England had to come to terms with a hostile France, but the offensive and defensive capabilities of naval power were still in question. Great damage could be done to trade and plantations and

invasion seemed extremely easy. France could be made to suffer by the same means, but William had his Dutch possessions to defend on land for which English resources were needed. England's contribution to defeating Louis XIV was unclear, but naval power would inevitably play an important part.[134]

The success of this invasion was also ultimately critical to the United Provinces and France. William's main concern was the French threat to his land frontiers, and English land forces were of some help, but the English fleet was a powerful addition to Dutch forces. This union of English and Dutch power would not have been significant were it not for the issue of the Spanish succession, which underpinned most diplomatic manoeuvres of the period. Louis' ambitions had long troubled Europe. By 1684, the successful "réunions" had extended French territories far beyond their 1648 borders. The Dutch had survived the French attack of 1672 by the skin of their teeth. Louis had finally been compelled to agree to terms by an alliance of most of the other European powers in 1678, and an alliance between the Emperor and the states of the Empire in 1686 to preserve the Treaty of Nijmegen indicated a continuing fear of further French expansion. Louis' attack on Philipsburg in September 1688 to consolidate his hold on the middle Rhine provoked a war in which all the insecurities of Europe were exposed. On 12 May 1689, a Grand Alliance of the Dutch, the Hapsburg Empire and England was signed to defend Holland and Germany, but it was Spain, with its imperial possessions in Flanders, Italy and America, that became Louis' principal target. Success in any of these areas would greatly expand Bourbon power at the expense of allied interests. The war was fought to a standstill of mutual exhaustion in 1697, but the treaty of Ryswick solved nothing, particularly the Spanish succession. Charles II was approaching death without a direct heir. Diplomatic attempts to broker a satisfactory succession foundered as much on Spanish insistence that the succession pass intact as much to Louis' ambitions. Charles II died on 1 November 1700. His will named Philip, Duke of Anjou, grandson of Louis XIV, as inheritor of the undivided empire. Louis' decision to support his grandson's claim launched Europe, with some reluctance on all parts, into another costly war.

The two wars, 1688–97 and 1701–13 had a major impact on the development of seapower. The more flexible offensive elements of naval warfare–the cruising squadrons, the expeditionary forces and the privateers, developed dramatically. The wars were fought across the globe much more consistently than any previous conflict. Whereas some minor expeditions went out to the Americas in the 1670s, the English sent five expeditions to the Caribbean and the French six between 1689 and 1697. They sent out 11 and ten respectively between 1701 and 1713.[135] British naval forces supported operations at

Newfoundland (1696, 1702 and 1707) and Port Royal, Nova Scotia (1709). Regular troops were sent as an expeditionary force to Canada for the first time in 1711. Local naval power was also more vigorous. British colonial expeditions went to Québec (1690) and Florida (1707–9). French local forces attacked Newfoundland in 1696. For the first time success in the Americas began to be seen as a potentially effective counterbalance to defeat in Europe. Louis and Philip had to give up the Spanish Empire in Italy and Flanders, but they held on to the valuable American colonies. England (Britain after the Union with Scotland in 1707) emerged from these wars with major overseas gains–Gibraltar, Minorca, St Kitts, Acadia, Newfoundland–the *asiento* trade in slaves to Spanish America, a commercial treaty with France and agreement on the French treatment of British neutral shipping. The privateering war expanded also, having a major impact on the fortunes of the combatants.

The role of the battlefleet was less clear. Four major battles were fought–Bantry Bay (1689), Beachy Head (1690), Barfleur/La Hogue (1692) and Malaga (1704). Bantry Bay was tactically drawn. Beachy Head was a clear French victory and Barfleur/La Hogue a crushing French defeat, while Malaga was tactically drawn but an allied strategic victory. Battles were as decisive as they ever had been. There was no new sterility about fleet battles, but for all intents and purposes France abandoned its battlefleet after 1694 to concentrate resources on detached cruising squadrons, expeditionary forces and privateers. By 1714, there was a clear distinction emerging between the powers. In Britain, seapower had become a major political issue. The structure and use of the navy became a central theme in the political debates over foreign policy. France ended the wars without naval policy having a clear link to her foreign policy. The structure of the fleets between 1680 and 1720 show that France had ceased to contest seriously the battlefleet strategy. Not only was she decisively outnumbered by the Maritime Allies in terms of battleships, but she was far behind in cruisers as well. After the peace, Britain retained a large number of cruisers which gave her naval power continuing flexibility, while French spending was limited to the maintenance of a small core of the battleships. Something happened to cause the British navy to develop far beyond the capabilities of rivals. Nonetheless, France had not been decisively defeated; least of all had she been forced to terms by seapower. French naval policy had a number of successes. The collapse of the French battlefleet was deplored by historians at the beginning of the twentieth century and the compliance of French statesmen in this process is seen as an act of folly,[136] but this was not obvious in 1714.

What happened during these wars was that the costs of seapower became more obvious, and its offensive capability more flexible. Far from proving that naval power

must be concentrated in the battlefleet, the wars suggested that there were serious policy options for the effective exercise of seapower. However, the long-term consequences of these options were not at all clear. The reactions of various states to the options available to them depended upon their ability to direct and mould their maritime resources and how the resultant naval force matched up to their rivals.

Chapter Five

The growth of operational flexibility

The components of operational flexibility

Operational flexibility depended upon a number of related factors, both inside and outside the navy. The actual strength of a navy was heavily dependent upon finance, the capability of central administration, the quality and quantity of real maritime resources, the ships, seamen and officer corps, the maritime infrastructure and the quality of political and naval decision-making. The relative strength of the navy was conditioned by the task it was to perform and the opposition it was expected to meet. This is common knowledge to historians, yet it is still difficult to draw any conclusions with confidence. European navies generated masses of records on these matters, but they have only been the subject of serious research in the last 40 years. The British and United States navies have probably had the most extensive work done on their administrative archives, but even here there are many unanswered questions. Historians of the French navy have recently done excellent work. Likewise, the Spanish navy is beginning to receive detailed attention. So many of the Dutch naval records have been lost in the great fires at the Admiralty buildings in 1771 and 1844, but historians are beginning to piece together the fiscal, administrative and political history of the service. The histories of the Scandinavian and Russian navies are being investigated, but little has been fed through into the debate on organizational development. With so much work still being done, there is little wonder that detailed comparative studies, which use this kind of evidence to assess the development and performance of navies at war, are still extremely rare. The sections that follow are an attempt to highlight some of the issues raised in the development of naval forces between 1688 and 1721.

Finance and administration

Naval power rested, ultimately, upon the real maritime resources that could be mobilized by a state to meet its objectives. However, access to these resources depended upon two interrelated variables–money and state power. Finance has long been seen as the "sinews of power", but the relationship between state finances and the growth of navies is still in need of substantial research. This will not be an easy task. The figures for income and expenditure on navies are sparse and ambiguous, and very little is known about marginal investment decisions regarding European navies.[1] Nevertheless, there is little doubt that financial factors were important in the creation and maintenance of state navies.

Changes in land warfare in the preceding 100 years had imposed significant demands upon states. These "military revolutions" led to financial demands and political changes that were to cause states to develop along very different lines.[2] One of the major differences lay in the relative role of the navy in each state. As armies became larger and more permanently organized, defence of land frontiers became more critical. Land was the tax and resource base for these large armies. Enemy occupation meant a loss of these resources and a strengthening of the enemy. Fortifications were built to defend frontiers and field armies assembled to exploit the resources of enemy territory. By building political consensus, by varying degrees of coercion and by developing their domestic administrations, states organized their military forces to meet this military imperative.[3]

Navies played a much smaller part. Although technologically at the forefront of military development, the battlefleet did not pose the critical threat to survival that an invading army presented. Possibly only Denmark was under direct political threat by seaborne invasion. The balance of Swedish and Danish land and sea forces, the geographical proximity of Swedish forces and the small distances required for armies to move once landed made Denmark highly vulnerable. England feared invasion, but the problems posed to a potential invader were much greater than English opinion believed in the wake of 1688. Navies were maintained with a minority of the funds available to states. The French navy accounted for 13 to 25 per cent of military expenditure between 1690 and 1715.[4] The English navy accounted for approximately 30 per cent of expenditure in the same period.[5] The Russian navy, which was the new power to emerge in the Baltic in these years, absorbed approximately 15 per cent of state expenditure, while the virtually moribund Spanish navy accounted for between 7 and 9 per cent of expenditure.[6] The large armies mobilized during these wars required the vast majority of expenditure, but they were also much more suited to the predominant political structures and cultures of

the time. When wars ended armies could be demobilized fairly rapidly and remobilized when the need arose. They suited a political system in which taxation was geared towards peacetime current expenditure needs, supplemented by financial expedients when wars broke out. Capital expenditure was limited to fortifications and magazines. In peacetime these fortifications were usually neglected and only placed in order or extended under threat of attack.[7] Repairs were usually carried out locally, with the minimum of specialist labour or resources.

Navies could not be treated in the same way. Navies have always been extremely capital intensive, with a heavy reliance upon manufacturing. They required complex construction processes, involving shipbuilding, shipyard construction and maintenance and ironworks. Large-scale purchasing, stock-piling and preservation of materials such as wood, hemp, canvas, ironwork, ordnance and victuals which had to be purchased on the domestic and international markets was required. The co-ordination of the purchasing process (financing, negotiation with merchants and artesans, quality and quantity assurance), manufacturing, maintenance and disposal demanded management skills unknown outside navies. The labour force also contained specialist workers such as carpenters, sailors, ironworkers and, particularly, shipwrights, for whom there was also an international market. All these factors placed demands upon states which were different from those required for a large army.

The financial demand was for a continuous minimum level of investment and spending. Navies could not be mobilized quickly. The battlefleet had to be maintained "in ordinary" during peacetime–the hull kept watertight, the masts, yards, rigging and ordnance protected from decay. Stocks of wood, cordage, canvas and ironwork had to be maintained for building and repairs should an emergency arise. All this required yards to be maintained, administrators and workmen to be paid. Taxation could be kept high to facilitate this, but the wartime tax burden fell heavily on both elites and the lower orders of society. In no country during the eighteenth century did the taxable wealth of the population rise as fast as the financial demands of the state in wartime. Even Britain, which possibly experienced economic growth of 300 per cent between 1670 and 1810, found its tax burden rising 16 times over the same period.[8] One of the major British successes of the period was the political management of this increasing tax burden. Even so, the growth of national debt and taxes was not even. Political pressures in most countries made continuously high levels of taxation difficult to sustain. Tax reform was also, for the most part, impracticable. By the end of the seventeenth century, the interests of the political elites had been tied to the developing states. Any modification of the tax

compromise was bound to have major political repercussions. Financial expedients, commonly used in wartime, such as debasing the coinage or bankruptcy, were also inadvisable in peacetime as it jeopardized the emerging credit system.[9] Traditionally, access to loans came through court bankers, whose personal wealth and credit were put at the disposal of the state, but by the end of the century, the first international credit market emerged at Amsterdam, in which the resources of a wide pool of investors provided the opportunity for a more stable and, therefore, cheaper loan process.[10]

This was a major step in developing the financial liquidity of states. Low levels of surplus savings meant that there was no supply-side pressure to create a domestic capital market. This forced states to rely on individual financiers, whose own credit was limited in relation to the escalating costs of war. However, the low cost of international investment facilities was only available to those states which could demonstrate that the risk of investment was minimized. This depended very much, as it always had done, upon the reliability of the tax yields used to service the debt. In this, the wars of 1688–1714 exposed an important division between countries. Although the Navy Debt became a major political nuisance, Britain developed a marked advantage over other countries by the mid-1720s. Its own capital market developed during the period, sustained in part by government debt which investors had confidence would be serviced. It also had access to the Amsterdam market. Britain could, therefore, maintain a relatively high level of expenditure on the naval infrastructure in peacetime without retaining the high levels of wartime taxation. France had been able to build a first-rate navy in the 1670s without much financial difficulty, but was less able and willing to commit future tax returns to maintaining a balanced naval establishment. Spain, which began the rebuilding of its navy after 1714, could only gradually increase its commitment to naval warfare. The new Bourbon regime in Spain possibly had more fiscal flexibility than France but lacked the basic domestic economic strength to outbuild her neighbour. Both these states were able to commit expenditure to create ships. They were less able to maintain or expand their navies over a long period on the basis of credit secured by future tax yields. Denmark and Sweden also faced increasing difficulties in funding their battlefleets. Denmark only built one battleship during the whole critical period of war between 1709 and 1721.[11] This difficulty of maintaining expenditure on a battlefleet over a long period was a factor in the attractiveness of the privateering war. In wartime they cost the government very little and provided the opportunity of prize money. In peacetime their continuous investment costs and administrative requirements were negligible. Without continuous financial support, navies based upon the battlefleet deteriorated very rapidly.

The Dutch, on the other hand, had substantial surplus savings for investment. Yet they did not invest in their navy in a manner that would maintain them as a great naval power. This is extremely important as it indicates that naval development was not determined entirely by financial strength. The Spanish in the 1660s and the English in 1672 ran out of money, but the Dutch and the French chose not to invest in their fleets. Traditionally, this is seen as the result of economic weakness in the first case and diplomatic ineptitude in the latter. Although France was pushed to this decision at least in part by fiscal inflexibility, the same could not be said of the Dutch. Both states were influenced by their perceptions of what a navy contributed to their foreign policy objectives. The Mahanian virtuous circle of colonies that financed seapower and seapower that protected further financial expansion of trade and colonies did not dominate their thinking. Their principal concern was the threat to their land frontiers. The war of 1672–8 had demonstrated the vulnerability of the Dutch Republic to French aggression. The security problem was exhausting. Dutch per capita spending on the navy remained higher than in England, but the military priority was the need to secure their frontiers, by forts and field forces. The predominant Dutch position in the carrying trade was gently eroded by Britain and France, but the historical connections of Dutch merchants with the major trading ports of Europe and accumulated savings ensured that Amsterdam retained a dominant position in the international capital market.[12] There was also a gradual "aristocratization" of the Amsterdam merchant elite. William III appreciated the role a navy could play in his war against France, but had little detailed interest in its management and development. After his death in 1701, the aristocratic Regents also had little interest, continuing the declining political influence for the navy.[13] The French also had to question the value of the continuous investment in the fleet. It achieved little by 1697 and its failure seemed to mean little in relation to the outcomes of the wars which ended 1713, and which had been shaped on the battlefields of Europe. The continuous cost of a battlefleet did not seem to be justified by its influence on military affairs.

Although finance was an essential element in the development of navies it was evidently not the single determinant of naval policy. Despite financial pressure Denmark, Sweden, the United Provinces and Venice maintained battlefleets. The administrative and fiscal machinery existed to support continued naval expansion, at least in the short term, but the limits were created by the dominant political perspective in each state. Jan Glete has focused upon this dominant perspective, or aggregation of interests within a society as the critical factor that provided the political drive towards the creation of navies.[14] Merchant and court interest came together to legitimate expenditure on navies and

warfare at sea. In Britain and the United Provinces this convergence of interest was strong from the sixteenth century. In France it came later and was very fragile. It was initiated by Richelieu, but was largely the product of Colbert. The death of Colbert in 1683 and his son, Seignelay, in 1690 ended this French policy. Seignelay's successor, Pontchartrain, had no commitment to the battlefleet, and the court, which was never enthusiastic about the battlefleet, were soon avid investors in the privateering war. The functions of Comptroller General of Finances and Secretary of Marine, united by Colbert, were finally separated in 1699.[15] Henceforth, the navy was at a distance from critical financial decisions. Although French expeditionary cruising squadrons of the 1670s damaged Dutch commerce, it is more doubtful if the French battlefleet ever contributed clearly to the prosperity of her overseas trade or her diplomatic objectives. Thus merchant support for the fleet was ambiguous. In any case, left to itself, the merchant community in France was too weak to have a decisive impact on French military policy.

There is a strong prima facie case to support the idea that the European capital market had developed enough by the end of the seventeenth century to absorb the escalating costs of warfare, and that most states were stable enough to service the debt in peacetime. Finance itself was not, therefore, as much of an obstacle to maintaining the naval infrastructure as it had been 50 years earlier. The critical issues related to the fiscal flexibility–could wartime taxation expand to meet the increased expenditure or interest on loans? In all states this depended largely on the consent of the taxed community and administrative efficiency. The establishment of consent and efficient administration underpins much of the debate about absolutism, constitutionalism and military power in the period and, despite all the work done on the "military revolution" to date is still a vital area for more research and explanation.

If finance was an important factor in the differential development of navies between 1688 and 1721, so was the administrative machinery of the state. Each state had to mobilize the financial and real maritime resources to create a naval power out of them. Once again, a clear comparative picture is impossible to establish, but the English seem to have had an important advantage. Their central naval administration had been evolving in a measured and relatively uninterrupted manner since the 1540s.[16] The Commonwealth and the Stuart monarchs had reinforced this administration. The political influence of the navy was at the very centre of governmental decision-making, either in the person of the Lord High Admiral, or in the Lords Commissioners of the Admiralty. The day-to-day administration of the navy had been in the hands of four Principal Officers, whose powers had been handed to a commission in 1642. In 1662 the role of this Navy

Board was clarified in instructions drawn up by the Lord High Admiral, the Duke of York. Resident commissioners were appointed at each of the dockyards to provide a contact between the local and central administration of the fleet. In 1683 a permanent Victualling Board was established, based upon experience dating back to 1657. In 1690 a Transport Board was established (abolished in 1724) and in 1701, the Board for the Sick and Wounded was created to manage these functions in wartime.[17] England was developing a very sophisticated professional naval administration, capable of addressing the issues raised by the intense wars of 1688–1713. There is still a great deal of dispute about the definition of a civil servant at this time, but there is little doubt that the English state had servants down to the lower levels of the administrative machine, whose performance was regulated by the objectives of the state rather than private patrons.[18] Although patronage was the key to appointments, satisfactory performance in the "effective" parts of the English central administration, that is the Treasury, the Admiralty, the Navy Board and their subordinate boards, was a constant requirement.

This does not appear to have been so highly developed in other parts of Europe.[19] Colbert had done a great deal to create central systems for control of the French navy, its manning and provisioning. His direction of investment in shipyards and the building and purchasing of ships was a remarkable achievement. His development of the central administration loyal to the crown was also a major event,[20] but he was unable to make it entirely effective in the provinces or as the provider of a controlled naval service. He created the mechanics of a naval administration (the *inscription maritime* (1662–73) and a system for the provision of wood to the yards (1669), and established the intendants and staffs of the naval yards (1659–80). He could not, however, create a capable administrative profession in so short a time with the political compromises he was forced to make.[21] After his death there was little political ambition to create effective administration at the lower levels of the administrative system.[22] The system he created broadly survived the wars up to 1714, but the navy existed in a political and administrative vacuum.

Spain also went through a major administrative reorganization between 1700 and 1718. The new Bourbon monarchy modelled its administration explicitly upon French precedents. It was a major step forward in the organization of the navy. The political control of the navy was exercised from November 1714 by a Secretary of Marine, and in January 1717 all the administrative functions were brought under the control of an Intendant General of Marine. It was the start of a naval revival that was going to make Spanish naval power a major factor in diplomatic events between 1718 and 1748. However,

although much more study is needed to be sure, it is quite probable that they found similar problems in establishing a professional administrative personnel.[23]

Dutch naval administration seems to have changed very little between 1688 and 1714. Public finances were strained in two of the admiralties, Freisland and Noorderkwartier, but funds were provided to increase the tempo of building to meet wartime needs. Otherwise, the mature naval administration was adequate to meet the demands of war.[24] Both Denmark and Sweden, like the Dutch, had firmly established administrative traditions. This is not surprising given the close commercial contacts and competition between these countries. Neither Scandinavian country sold offices which made control of the crown's servants impossible in some other parts of Europe.[25] After the defeats of 1675–9, Sweden undertook major financial and political reforms, managed by a bureaucracy, that stabilized the budget by 1696.[26] There was a slow but steady increase in the size of the Swedish navy between 1680 and 1697, and an increasingly professional naval service, but foreign policy was characterized by caution. The Danes focused their energies on smaller numbers of larger battleships as financial retrenchment dominated government policy. That there was a fruitful interchange between these countries and the United Provinces in maritime technology and skills is well known. What still needs to be assessed is the degree of administrative interchange.

Russia came from a very different political tradition. Peter the Great's borrowings from the West are well known, and the great Petrine reorganization of the central administration of the state, 1717–20, owed a great deal to Swedish and German precedent. The central Admiralty College was based on the Swedish model. This might have created problems if Peter had tried to impose an alien culture further down the administrative ladder, but recent research suggests that the Muscovite state was able to create a significant maritime power using more traditional administrative and financial methods. Peter enthusiastically imported galley and shipbuilding technology from Venice, Holland and England, but was wise enough to recognize that the administration of his fleet relied upon traditional noble and merchant relationships.[27] The main problem that Peter faced was that his commitment to the navy was hardly shared by any other interest in the state. Almost as soon as he died in 1725 the fleet began to atrophy.

Central naval administrations were becoming more important as navies developed an infrastructure that required constant maintenance. However, these administrations were developing at different rates and with variable support from the societies they served. In access to finance, political support and administrative continuity or experience, England was more favoured than most other nations at this crucial time. This advantage may have been very important when marine resources are considered.

Materials and shipyards

The materials needed to build ships were common to all nations–vast quantities of wood, iron, canvas, hemp and tar. All countries faced the same problems. A variety of high-quality woods had to be found, cut, moved and seasoned. Almost to the end of the period of the sailing navies there were no technical or scientific advances that enabled states to cut, move and preserve timber. Particularly, there were no solutions to rot other than a long period of seasoning.[28] This meant that expensive stocks had to be held for building and repair, yet supply had to be expanded quickly at the outbreak of war. The only solutions available were political and administrative. No country had adequate domestic supplies of all this timber, and as early as the 1650s, England, France and Spain experienced shortages of the principal hull timber, oak. All countries tried the same means of preserving their dwindling supplies. Re-afforestation commenced in Spain in the 1590s. Royal forests were enclosed in England in 1668 and an afforestation programme commenced in 1698. In France, a survey of all woods was commenced in 1663, with the intention of creating a codified system of timber exploitation. In France, the reservation of suitable timber for the navy was a traditional power of the crown, revived by Colbert in 1672. In 1683 all timber within 15 leagues of the coast and six leagues of major rivers was reserved by the crown. Further laws in 1701 extended prohibited cutting of marked trees, even, in 1748, on private land. In Russia, despite the relatively poor quality of Baltic oak, it was a capital offence to cut it. None of these measures were entirely successful. The French, Spanish and Russian local administrators of the woods were not particularly effective. Some lacked experience, others had territories far too extensive to manage and still others were not strong enough to override powerful local interests. In England the contracting process quickly became dominated by the merchant contractors, to the detriment of the crown's interest. An attempt by the First Lord of the Admiralty, the Earl St Vincent, to reverse this relationship in 1803–4 led to the most significant timber crisis in the whole history of the Royal Navy.[29] Private landlords across Europe resisted pressure to plant or cut when land could be used more profitably in other ways. Housebuilding, commercial shipbuilding, charcoal burning, foundries and tanning works were also major competitors for wood and tree products. Scarcity was never overcome, and occasional shortages in wartime were experienced, yet there does not appear to have been a prolonged crisis in any country regarding the basic domestic wood resources. There is a great need for a thorough comparative study to explain how and why each country was able to preserve a fundamental domestic timber supply and expand their state navies.[30] At present, only some tentative reasons might be advanced.

There was an improvement in the administrative capabilities of most states during the eighteenth century which enabled them to exploit domestic resources. This was combined with some improvements in the ability of timber merchants to shift their wood from greater distances. From 1747 cutting increased in Santander, northern Spain, the highlands of Segura de la Sierra, Navarra (1766) and Catalonia (1770s).[31] In France, vast entrepôts were established at the mouths of the great rivers, the Seine, Loire, Garonne, Gironde and Rhône, where timber was stockpiled to be carried by sea around to the dockyards. Although this evened the flow of timber from far afield in peacetime, it was a potential bottleneck if these timberyards could be cut off from the docks in time of war.[32] In Russia the experience gained from building the Azov fleet from the forests around Voronezh, 400 kilometres up the Don River, was invaluable to Peter and F. M. Apraksin, the civil admiral of the Russian fleet, when the Baltic fleet was started on the Volkhov and Luga rivers. Particularly astounding was their ability to transport oak 1,200 kilometres up the Volga from Kazan to the new shipyards.[33] In Britain, where the need for timber was probably most pressing by the end of the eighteenth century, the Navy Board developed the most sophisticated international network for timber exploitation. From 1775 until 1815 British naval administrators managed dramatic increases in demand and fluctuations in timber supply competently. However, one should not assume that British naval administrators at all levels were significantly better during the eighteenth century than their European counterparts. The political decision by king and parliament to maintain a strong navy generally enabled the Admiralty to keep a supply of three years' timber in stock at high prices, so although the day-to-day relationship of the Navy Board with the merchant contractors was probably less well managed than in France, the timber supply problem was more effectively controlled.[34]

Perhaps the most important factor in the preservation of domestic woodlands was the expansion of imported timber supplies. Although Toulon relied heavily upon pines from the Pyrenees and Dauphiné in 1700, the French Atlantic ports exploited the excellent trade in high-quality Baltic masts and spars. Likewise, England and Spain relied on these sources. The Russian conquest of Livonia in 1709 gave Peter I access to huge quantities of high-quality oak for his growing navy. The naval administrators quickly became discerning purchasers. From 1652, English administrators purchased their largest "sticks" from New England, where the white pine proved the best wood. Middling masts were bought from Riga and spars from Norway. French purchasers concentrated on Riga for masts from the 1670s, and it was only towards the end of the eighteenth century that they began to experiment with other Russian wood. Other woods were also

imported from the Baltic–oak and deal planks from Danzig, deal from the Narva and oak from Stettin. Other sources were exploited during the eighteenth century. Deals from North America and Naples, oak from Albania, Turkey and Tuscany, Polish pines from the Russian Black Sea ports and Canadian timber, all supplemented the stocks in European shipyards. The development of this seaborne trade was important, but it is still unclear how and to what extent it shaped the building policies of the maritime nations. The precise contribution to both the political decisions to build warships and the actual construction of vessels is almost unknown. Historians of the British Royal Navy have done a great deal to describe the policy and assess the impact of American timber on naval events, particularly in relation to the crisis caused by the American War of 1775–83. Even some of its social consequences have been explored.[35] However, a great deal more work is needed to clarify the relationship between the expanding international timber trade and comparative European seapower.

An aspect of shipbuilding that is a little clearer is the overseas building of warships. Spain was the principal beneficiary of this policy. After 1723, Havana became the most important centre for battleship construction in the Spanish Empire. It had a firmly established urban craft and trading economy, good access to supplies of extremely durable cedar and mahogany and could build cheaper than any yard in Spain. Over 70 of the 227 Spanish ships of the line built in the eighteenth century were built at Havana.[36] France examined the possibility of building at Québec after 1702. The first large ship, the *Canada* (40), was launched in 1742. Fourteen others followed up to 1759, the largest being the *Algonquin* (60), launched in 1750. Between 1729 and 1743 96 other small ships and boats were built along the banks of the St Lawrence and its tributaries. The experiment was, however, disappointing. The costs were comparatively high because there were few artificers and the facilities were poor which slowed construction considerably.[37] The British also experimented with construction in North America in 1746. Two 24-gun frigates were built in New England, but Navy Board prejudice against the quality of American oak prevented further investment in this region.[38] It was not until May 1813, with the *Wellesley* (74), built at Bombay, that the British had a battleship built in an overseas yard.[39] Thereafter, the teak warships from Bombay made a small but significant contribution to British naval power.

A further factor in the ability of states to maintain their fleets was an improved knowledge of shipbuilding, but this is another area of maritime history that is still very poorly understood. Recently, historians have made great progress in charting the technical development of the warship. It is also known that the durability of warships increased

during the century. In Spain, for example, the longevity of warships almost trebled between 1724 and 1774. What is less well understood is the reason for this. Less use of green, unseasoned timber was a factor, but what was the role of the scientist, the shipwright and the labour force? Certain generalized conclusions are well known. Dutch and English shipwrights were in great demand across Europe. In 1697, 68 per cent of shipwrights working in Russia whose nationality is known were Dutchmen.[40] French and Spanish shipwrights wanted to experience work in English and Dutch shipyards. Peter I's work as a shipwright at Deptford during his "Great Embassy" of 1696–8 has been seen as critical in his decision to shift from Dutch to English building techniques. The Russian Baltic fleet owed a great deal to English shipwrights like Joseph Nye, Richard Cosens and Richard Brown. How far shipwrights contributed more generally to design and quality improvement is, currently, unclear. It is also unclear how theoretical sciences contributed to design and longevity. The Royal Academy in England and the Académie Royale des Sciences in France both concerned themselves with practical naval problems from the 1660s, but in France there was a much more explicit attempt to educate administrators, naval officers and craftsmen in the theoretical principles of ship design than in England or Holland. The contribution of academic science to seapower through ship design and statistical and administrative sciences has recently been challenged and it may be that it was the social rather than the intellectual changes that were most important. In France the shipwrights may have started in a more inferior position socially than in England, but there was also a more determined attempt to improve their social and professional standing. This may have been an important factor in causing French warship design to be considered the best in Europe during the first half of the eighteenth century.[41] However, a great many questions need to be answered before even the most tentative of comparative conclusions can be offered. The quality of the *expatriate* shipwrights has to be questioned, particularly in the early years of naval expansion. A greater understanding of the process of the transmission of skills and knowledge between shipwrights and to shipwrights from other sources is needed. In France the schools of construction were established at Brest, Rochefort and Toulon in the 1680s. Their contribution to the skill of the shipwright is not clear, nor is the relative skill level of the French shipwright compared to the more traditionally apprentice-trained English shipwright. The relationship of these skilled craftsmen to authority in the yards is also critical to understanding their contribution. Whether there was particular expertise that shipwrights possessed that gave them an advantage over other nationalities also needs clarification. In Russia, for example, Dutch craftsmen remained valued for

their work on masts and rigging and the English for their work on hulls.[42] Finally, the relationship between the design and construction of warships to naval power needs to be more thoroughly explored. Other factors meant that the improved quality of French warships may have come too late and lasted too briefly to be exploited, but what these factors were and how they related to design and construction has not been clearly explained.

What can be said so far about the most basic shipbuilding resource? No state solved the timber problem. All Atlantic states at some time during the eighteenth century were forced by exigencies to build using unseasoned, green timber, but none were forced to concede, permanently, naval power for lack of wood. Most states gradually improved their administrative means of exploiting domestic and overseas timber supplies, but only Spain turned to extensive overseas building. Most states had access to an international pool of skilled labour, but the contribution of these men to the effective use of materials is not clear. At the beginning of the eighteenth century, therefore, it seems that no power possessed a clear advantage in the exploitation and management of timber supplies.

While the matter of timber supplies is still greatly under-researched, the situation is even worse with regard to other naval stores. All that can be said at present is that the same tentative conclusions may apply. Attempts to provide adequate domestic supplies of hemp in Spain, France and Britain generally failed. France produced adequate supplies of high-quality canvas, for which there was a ready European market, but alternative sources were available if France tried to interfere with the market. Tar and resins had to be imported from the Baltic as North America failed to produce adequate quality alternatives. So long as the Baltic markets remained accessible adequate supplies could be obtained. General ironwork could usually be purchased locally without much difficulty. Cannon, on the other hand, were more difficult to obtain. The Dutch remained important suppliers and middlemen in the international arms trade, but across Europe the growth of iron and bronze foundries in the last half of the seventeenth century permitted most states to equip their ships with a standard establishment of guns rather than any weapon that became available, which was an important feature in the drive towards the standardization of warships. Once again, both the international trade and the domestic industry require much more research, but it seems ships were less often delayed from sailing by lack of ordnance than in the preceding century. Temporary crises could and did occur, such as in Britain in the late 1780s, but these were more likely owing to an inability to prevent technical deficiencies in the guns during the manufacturing process or predict deterioration by exposure to the elements than to the

overall quantity being supplied. The same seems to be true of gunpowder production.[43] Once again, no country possessed a decisive advantage.

The final aspect of the material of shipbuilding was the yards themselves. Here again, too little is known to make any safe comparative conclusions. Some excellent work has been done on the mechanics of dockyard administration, particularly on the British yards, by Daniel Baugh, Roger Morriss and Roger Knight. From these studies and others, it is possible to suggest that Britain had a number of advantages over her European rivals. The first was a simple geographical advantage. The south and west of England were well provided with deep-water anchorages and reasonably well developed hinterlands. The coincidence of timing which saw the need for deeper-drafted, bigger vessels at the same time as a shift of rivalry from the United Provinces to France enabled England to downgrade the shallow riverine facilities at Deptford, Chatham and Sheerness and develop the coastal main yards at Portsmouth and Plymouth. The possession of dry dock facilities as an important feature of all British dockyard developments after the 1650s, which France and Spain did not have until after 1800, was a significant advantage in speeding up the turnaround time of ships in dock.[44] Rochefort up the Charente river was difficult to reach by sea. Brest had poor landward communications with the crucial supply sources of France. The main Dutch yards on the Zaan were relatively shallow. Spain had some excellent anchorages, but was also faced with poor land communications for supplies. The Spanish experience points to another possible advantage England had. English dockyard administration was relatively well-established, integrated at a national level and worked fairly well with local and regional markets. Competition from private shipyards for supplies and labour was managed with some success and although it was unpopular, shipwrights were moved between royal yards according to needs. The Spanish royal yards, such as Guarnizo at Santander and El Ferrol, found themselves in competition with each other for vital naval resources.[45] The ability of the local administration to co-operate and respond to needs does not appear to have been so well developed in France and Spain. The competition with the private yards, of which the British resident commissioners complained, may have been an advantage, because it gave them access to the quantity and quality of maritime resources necessary to maintain a large number of heavy warships. French yards, like Rochefort, Brest, Toulon and Lorient, were at a distance from the main commercial centres and relied on special supplies of materials and manpower. These advantages may be an illusion as too little comparative work has yet been done to confirm these impressions. However, if they are accurate, it might point to an important and growing British advantage.[46]

Seamen and manpower

The other fundamental ingredient of seapower was the seamen themselves. Once again, all states were short of this vital commodity, but some important differences were clear. The seafarers of any country only made up a small proportion of the total population and the number of seamen was generally related to long-term commercial maritime activity. That trade was the "nursery" of seamen was well understood across Europe. The employment and relatively high wages of thriving maritime commerce attracted seamen from other countries and encouraged a stream of landsmen to take their chance at sea. But when war broke out tensions quickly appeared. Some trades were disrupted and employment depressed, but the higher prices of imported and exported goods encouraged merchants to increase seamen's wages. Privateering enterprise also offered seamen alternative employment. At the same time, seamen to man the state's warships were critical for a battlefleet. This was resented by the maritime community and by the early eighteenth century, the states' demand for sailors for the navy went far beyond their natural domestic pool of seamen. The other sources had to be tapped, such as encouraging more landsmen or foreign seamen to enter service.[47] Each state had to find a way of manning its ships from the resources available to it. The dominant trading power, the Dutch, had difficulty manning their warships from the middle of the seventeenth century. Perhaps 40 per cent of the crews on Dutch ships in the First and Second Anglo-Dutch Wars were foreigners–Germans, Danes and Norwegians–which rose to 60 per cent by the 1720s.[48] Service in the navy, or the VOC fleet, was highly unpopular and neither ever managed to man their vessels with much over 60 per cent native Dutch. The commercial demands of the European carrying trade were so great throughout the seventeenth and eighteenth centuries that it was never easy for the Dutch to man their warships without causing significant damage to the economy. The size of the seafaring population seems to have been in gradual decline since the 1630s, as demand consistently outstripped supply. The cumulative losses caused by the VOC, which drained the Netherlands of about 660,000 seamen between 1602 and 1795, was a major demographic problem. Nevertheless, the maritime networks proved a lure for unemployed German and Scandinavian seamen and enabled the navy and VOC to recruit with reasonable success among the urban poor at least until the 1780s. They continued to man their fleets by traditional methods–embargoes, quotas and a fairly generous wage. Only occasionally was the press used and they rejected complex administrative measures to direct maritime labour into the service of the state. Dutch trade, let alone naval forces, was unsustainable without a constant supply of foreign seamen and landsmen, and this

lack of surplus seafarers may have been a major factor in the Dutch decision not to try to maintain their relative naval power in the eighteenth century. The main threat to the United Provinces was French territorial ambitions. Resources had to be concentrated on the land frontiers. Naval competition was not a major factor after 1692 because of the general community of interest with Britain, whose fleet increasingly took the burden of maritime war. From 1689 until 1748 the Dutch and British operated naval treaties whereby the two states provided ships for a joint fleet according to a specified ratio, but the Dutch seldom maintained the ratio or the supporting infrastructure needed for the extended operations the British increasingly relied upon.[49]

In France, the manpower problem was evident from the very time that Colbert began the dramatic expansion of the fleet, and intensified throughout the entire period up to 1789. Between 1660 and 1789, the French seafaring population fluctuated from about 50,000 to 70,000. About one-third of these were from the Mediterranean, who had little experience of deep-sea oceanic sailing and operated in a dynamic local coasting trade in Italy, which made them difficult to control. The Revocation of the Edict of Nantes in 1685 deprived France of perhaps 20,000 deep-sea Huguenot sailors at a critical point in the expansion of the French fleet. While the seafaring population remained largely static up to 1789, French merchant tonnage more than quadrupled, putting an increasingly severe strain on the manpower pool.[50]

Colbert's response to the problem was a series of administrative measures to improve the crown's access to the pool of seamen. Far from being the tools of a ruthless absolute monarch, recent research has shown that the measures were designed to create a reasonably equitable system in which service was rewarded and spread among all the seamen of the realm to replace the more arbitrary embargoes and press. Between 1662 and 1673, a series of measures were implemented to enrol all the seafarers of the country on the *inscription maritime*. The seamen were divided into three groups or "classes". Each year one class was to serve on the warships, one class was to stay in reserve in port on half pay and one class was free to take employment on any commercial voyage. The intended benefits for the seamen, apart from the guarantee of freedom from the press, were many. While in the two service classes seamen had the right of medical services at the hospitals of Rochefort and Toulon. They were exempt from quartering troops in their homes, local guard duties and public taxes. They were exempt from civil suits for debt, their families were promised free parish education, financial support and, if necessary, a widow's pension. Conditions on the ships were improved. In 1670 the right of captains to disburse sailors' pay and to purchase and manage ships' victuals was removed after an investigation into abuses.[51]

The result was not as successful as hoped, but the reasons are disputed. Paul Bamford attributed the failure to a fundamental imbalance between state and merchant navies. Although Colbert recognized the interdependence of the royal and merchant marine, he created for the crown a legal prerogative for preference in manning and building ships that undermined the domestic local maritime economy. This royal navy then failed to protect the merchant vessels that would have ensured a continuing supply of seamen.[52] The result was a maritime economy that was stunted, cautious of investment and with uncompetitively high costs. However, E. L. Asher contends that it was not the effectiveness of Colbert's system that caused the problem, but its ineffectiveness. The pool of seamen was large enough, but the administration failed to tap into it. This failure was evident in the war of 1672–8. The press and embargoes had to be reintroduced, and they were periodically reintroduced in the wars up to 1714. Men were forced to serve on successive campaigns. The financial benefits promised were not forthcoming as the wars put pressure on the crown's resources. Asher highlighted the poor performance of the local administrators, attributing much to incompetence and corruption. When Pierre Arnoul, the Intendant Général de la Marine, conducted an inspection of the classes in 1693, he found several basic administrative weaknesses that would have outraged Colbert's sense of order and organization.[53] There is little doubt that they did not perform well and this may be an important point of distinction between French and British naval administration. However, the French administrators were faced by entrenched local interests. The local admiralty officials, the naval officer corps, the parliaments, the estates and the clergy were powers that only extensive royal patronage and financial support could have countered. Neither were forthcoming, particularly after Colbert's death in 1683. The great Ordinance of Maritime Law of 1689 encoded the administrative systems but not the promised benefits to the seamen. It failed to create a unity of interest between the crown, the established local powers and the seamen, which was the only way to ensure that the full force of social power was applied in the maritime community to man the royal fleet.

The question remains open. It is certainly true that too few seamen reached the French royal navy over a prolonged period to maintain a powerful battlefleet once the attrition of warfare began to bite. Once the British realized this weakness and refused to exchange prisoners of war in the Seven Years War, the French manpower problem became acute. Asher is right to emphasize the general weakness of the French administrative system at a practical, local level, but he was probably too phlegmatic about the ability of the maritime community to continue with up to two-thirds of its manpower preempted by the crown. His assumption that normal commerce was naturally dislocated by the outbreak of war thus releasing these men for service in the fleet is too sweeping. Trade

continued even in the most disastrous years of war. Between 1755 and 1759, perhaps the worst years for French commerce on the seas in the entire period up to 1793, a record number of ships left French ports for Canada.[54] Privateering and sailing on neutral vessels were also significant employment options. Whether the *inscription maritime* was damagingly strong or too weak, there is no doubt that France suffered a rapid drain of trained seamen when war broke out, particularly in the Mediterranean. The limited number of seamen available was a factor in this, but at present it is not possible to establish the precise relationship between overall numbers, administrative processes, social attitudes and service on the royal fleet. Other factors, such as the distance of the naval ports from the commercial ports may not have helped. Seamen did not naturally sail to these ports and the periodic outbreaks of epidemics positively kept them away.[55] Although it is fairly clear that the manpower problem in France had extremely serious consequences, much more research is needed to establish its origin and persistence. Like other powers, France relied upon foreigners, particularly Scandinavians and Italians, landsmen and soldiers to fill the gaps.

It is in the area of manpower that Britain might have had the most marked advantage. Traditionally, the press gang is seen as evidence of the shortage of trained manpower for the navy and this is, to a large degree, true. Like other countries Britain did not have an adequate supply of trained seamen for war and the press or temporary embargoes were the most politically acceptable ways of resolving the problem. However, although figures are highly unreliable and the method of calculation open to question, it may be that, unlike the United Provinces and France which experienced a static maritime population, the British maritime population grew steadily during the eighteenth century. Stable pay rates at a time when the shipping industry was rapidly expanding suggests a rising supply of manpower to serve the vessels. If it is assumed that a warship required a fairly constant proportion of skilled seamen to sail it during the period 1688–1815 and that the administrative processes for procuring seamen remained largely unchanged, then the significant expansion of seamen on warships during the three major wars between 1739 and 1783 also suggests that the pool of skilled manpower was increasing at a fairly fast rate.[56] The figures calculated by D. J. Starkey shown in Table 5.1 give an indication of this growth.

There may, indeed, have been a virtuous circle in England, unlike elsewhere, in which the wartime demands for seamen created new seamen out of landsmen who remained on the labour market as seamen when peace returned. If this did occur, it gave Britain a crucial advantage, but the question still remains as to why Britain should have

Table 5.1 Peaks of employment of seamen in peace and war (years of peace in italics)

1738	*53,716*	1763	129,560	*1791*	*98,251*
1744	88,588	*1772*	*79,222*		
1755	*77,819*	1782	151,090		

Source: D. J. Starkey, "War and the market for seafarers in Britain", in L. R. Fischer and H. W. Nordvik (eds), *Shipping and trade, 1750–1950: essays in international maritime economic history* (Pontefract, 1990), pp. 40–1.

been able to create this relatively elastic pool of maritime labour. One suggestion is that the coastal shipping industry, protected from international competition, played a particularly significant role in the expansion of the seafaring labour market.[57] Yet other factors remain to be investigated. Increasingly, the British navy had to maintain itself in the distant waters of the Caribbean and North America and although recruiting there was very difficult, and in the case of pressing technically illegal after 1708, the navy was still effectively manned. How it did so is not always clear. Sometimes doubtful expedients were used, such as stripping transport ships of trained men or using slaves, but the ability of the navy to man its ships was an important advantage.

That this advantage existed, whatever its cause, enabled the British to maintain their fleet by traditional methods such as the press gang throughout the expansion of the eighteenth century. Although the image of press gangs roaming the ports of England taking up all kinds of men by force is the most common in the popular imagination, the press was operated most effectively at sea by warships taking seamen off ships returning to Britain. Here, naval officers could select the most experienced seamen which they desperately needed for their ships. There is also no doubt that volunteers made up a significant proportion of warship crews, perhaps in the middle of the century in excess of 60 per cent.[58] Why men volunteered is also open to question. Some were experienced seamen who followed particular officers. Others were landsmen who joined the king's ships for a variety of reasons. Other methods were proposed or supplemented the volunteer and the pressed man. In 1696 a Register Act was passed as a very pale imitation of the French *inscription maritime*, but it foundered by 1700 on the failure to pay the seamen the promised rewards for registration and was repealed in 1711.[59] In 1756, Jonas Hanway established the Marine Society, which looked after orphans of seamen to be trained up to service at sea. By the 1790s these boys possibly accounted for 8 per cent of the seamen of the Royal Navy. The need for seamen at the end of the century led to the

revival of a primitive form of conscription. The Quota Act 1795 demanded each parish to provide men for the fleet according to quota. Debtors and vagabonds could be sent to the fleet as a summary punishment. As elsewhere, foreign seamen were an significant minority, especially after the United States became independent, totalling possibly 12 per cent of the fleet by the 1790s.[60] Although these were important additional sources of manpower at the end of the century, it is significant that Britain was able to man a dramatically expanding fleet between 1688 and 1793 without recourse to major financial or administrative upheavals. This must have been a critical factor in Britain's rise to maritime predominance, yet still too little is known about it to explain why and how it happened.

Other countries also suffered from the lack of seamen. Jean Meyer has suggested that a major reason for the survival of the galley in the Mediterranean was the absolute dearth of seamen.[61] Soldiers, convicts, slaves or free landsmen could serve at the oars with little or no maritime experience. In the Baltic, Russia found that galleys were useful in the shallow and difficult waters off Finland, and they were also extremely sparing in the use of seamen. Russia only got experience for its seamen very slowly. Some trained under foreign officers in the Russian navy. A very few were sent abroad to serve in the ships of other powers, such as the 30 that Peter I sent to English ships in 1706, but these men were destined to become officers. As late as 1738, it was even suggested that thousands of Russian seamen might serve on British warships if war with Spain should break out in order to gain some experience.[62] It was not until the second half of the eighteenth century that Russia seemed able to train its own seamen for deep-water warfare. One of the great achievements of the period was the expansion of the Spanish navy. The rudimentary training of seamen had been well-established since 1625, and the Bourbon monarchy was able to increase the numbers available to the fleet gradually over the course of the eighteenth century, from around 27,000 in 1739 to peak in the 1790s at 65,661, equal to that available to France.[63] It was a major effort, but even so it was barely enough to man the expanded fleet of the 1780s.

Private investment in naval war

This review of the accessibility and management of the basic resources of maritime power suggests all the maritime powers were faced by significant problems in creating a powerful state-owned navy. There was, however, one further resource that could be exploited for operational flexibility that did not require the state to purchase or directly

manage it. This was the willingness of the maritime community to engage in naval war on its own account as privateers. This form of war was very attractive. It was highly flexible. At a time when the state had to concentrate on the building of large warships, ships of all sorts could be mobilized, from rowing boats to specially built private warships, which could operate in any part of the world. It cost the state very little either in material or manpower, and it might even yield a profit. With global trade expanding, these privateers could do significant damage to the enemy and in some areas such as Zeeland which had a long tradition of privateering, it was politically very important. Although privateers competed with the navy for precious manpower resources, they might actually stimulate the labour market. In England an Act was passed in 1692 requiring one-third of each privateer's crew to be landsmen, who with experience expanded the pool of trained labour.

The primary motivation of the privateers was prize money. This meant that the impact of privateering depended on two important variables, the vulnerability of the enemy merchant ships and their significance to the enemy. Vulnerability of the enemy ensured that the cost of capture was limited and the profit to the privateer and crown was correspondingly higher. The significance of the capture was important as it was intended that these seizures should make a contribution to bringing the enemy to peace. Contemporary views on the importance of trade to a particular enemy were critical in the decision to encourage the privateering war. During the second half of the seventeenth century world trade had increased dramatically and although convoys had been used to protect merchantmen through choke points such as the Sound and the Mediterranean for decades, the expansion of trade to new areas such as America and Africa, and particularly the increasing participation of independent traders, made the control of this traffic much more difficult. On the whole, this expanding trade looked vulnerable. Furthermore, it may have looked increasingly significant to states. France and England had long recognized the importance of trade to the United Provinces or the Indies route to Spain. England had also shown itself diplomatically vulnerable when its commerce was under attack or even when short blockades of the Thames were undertaken. The most influential and concise statement of the case for naval war based upon privateering came from the Sebastian le Prestre de Vauban (1633–1707), Louis XIV's great engineer. His *Mémorandum sur la caprerie* of 1695, highlighted the advantages to France of such a war at sea against the maritime allies at a time when the value of the battlefleet was seriously questioned.[64]

France, on the other hand, was not so threatened, although an aggressive trade policy was at the root of Franco-Dutch conflicts from the 1670s. Controlling French

commerce was seen as important to the Anglo-Dutch alliance for both defensive and offensive purposes. Also the English experience of war at home and overseas since 1642 created a particular view of warfare in which privateering had a significant role. The reaction to the standing army of the Protectorate made a significant army impossible for any monarch after 1660. With the growth of professional armies on the continent, this precluded England from playing a decisive role in land warfare. Naval power also had to become the first line of defence. Unfortunately, naval power did not necessarily have offensive capacity to influence the land powers of Europe. England had to establish the reasons and terms upon which it should become involved in war against these land powers. The powerful battlefleet protected England, but little could be contributed and little could be gained. England had the luxury of protection but a weakness in inflicting decisive damage upon an enemy. What emerged was a view that war should be fought in a way which did not necessarily defeat the enemy but which clearly enriched England. The enrichment came from the seizure of the enemy's share of a growing world trade. Eventually, the seizure of enemy colonies became practicable and an even more valuable asset in bargaining for peace.[65] The long-term impact of such a policy was to increase Britain's relative power through financial growth. How far this was a conscious policy and how it evolved are still matters for debate, but it was a policy that was consonant with English domestic political constraints and the developing maritime economy and there can be little doubt that privateering was seen as playing a part. Despite the irritation of naval officers who resented the competition of privateers for seamen, privateering was encouraged as an important weapon of war in England.

The problem most usually raised concerning privateers was the inability of the state to direct them towards objectives other than prizes. While the destruction of the enemy's commerce remained a primary objective of sea warfare, this was not important. Furthermore, the long experience of commerce warfare had led to treaties and case law that limited the uncontrolled and illegal use of this form of violence at sea. What emerged more clearly during the wars of 1688–1713 was that the expansion of some states' fleets, which enabled the development of more varied objectives of a maritime campaign, necessitated privateers to be both encouraged and controlled more precisely than they had been. It was a matter of controlling the battlefleets, the cruising squadrons and the privateers to create a more decisive seapower. In this, it was not so much the privateers that caused the problem, but forging the state's fleet into a flexible offensive weapon. The warships and the handling of these vessels was critical to this development.

Ship technology

So far as the warships were concerned, there was very little technical difference between the various states. The overall dimensions of ships and particularly their drafts varied, but the battles of 1664–78 had convinced almost everyone that in a clash of battlefleets, firepower and particularly the number of cannons was crucial. The question was how was maximum firepower to be married to the other requirements of a ship–speed, manoeuvrability, seaworthiness, endurance and cost. The preferred option was the development of the three-decked warship. Colbert had been particularly concerned with the quality of French warships. In 1673 he established Councils of Construction in each naval port to advise on the theoretical proportions of the perfect warship. In 1677 a survey of the French warships had revealed that few came close to an ideal vessel. When his son, Seignelay, succeeded him in 1683, he was probably one of the most well informed Ministers of Marine France ever possessed. He had seen at first hand the strength of English warships and their heavier guns. In 1684 he established an Inspector of the King's Ships whose task it was to explain to shipwrights how to prepare and work to plans. The Ordonnance of 1689 specified that first- and second-rate ships (120 to 70 guns) should be three-deckers and their main gundeck armament should be uprated from 24lb to 36lb on the first rates and from 18lb to 24lb on the second rates. The ships were built with closer framing which made them more resistant to cannon shot, but their sailing qualities might not have been good.[66] The Dutch also built 15 three-deckers of about 90 guns between 1683 and 1695. The English continued the practice, even converting some of their 80-gun two-deckers into three-deckers. The result was not good and real problems occurred in later years when England still had these ships while her rivals were building a new generation of well-designed two-deck warships. Some technical changes did occur. The steering wheel replaced the tiller on most English ships after 1700, giving greater control over ships. The invention was not followed by France until the 1720s. Greater manoeuvrability was also provided by the development of the sail plan. Mizzen topgallants, staysails and a jib-boom gave ships better control in turning and close order manoeuvre, but they hardly provided a decisive advantage to one side or the other.[67] The other main vessel in the fleet was the frigate. Once again, French design was to lead. At the end of the century any ship up to 50 cannon might be called a frigate, but the French decision to concentrate on commerce-raiding led to the building of two ranks of two-deck frigates mounting 6lb to 12lb cannons, which performed extremely well and to which the English responded with their own "40s" in the 1700s.[68]

Bomb ships, sloops and small vessels were gradually added to the states' fleets during the course of the wars, but no decisive advantage was obtained by any power.

The officer corps

Although the technology was common to most states, the development of their officer corps demonstrated some differences. This is an aspect of naval power about which far too little is currently known. Very limited work has been done so far, principally on Britain and France, and very little can be concluded at present. The United Provinces and later Russia had to rely on a substantial number of foreign officers. In the case of Holland, it was not an issue of the social status of officers, who had always been drawn from the maritime community rather than the landed aristocracy, but rather that the service itself was unpopular. Perhaps 30 per cent of the officer corps was filled by foreigners. In Russia the status of the sailing navy was high compared to the galley fleet, which possessed none of the political and religious symbolism of the Mediterranean galley fleets, but there were simply too few qualified Russians to lead the new sailing fleet.[69] Disciplining and controlling this large foreign element within the fleet was a challenge about which too little is known at present.

For other fleets, these tasks were added to another critical role, the training of appropriate officers. Officers had to be respectable representatives of the crown, which usually meant that nobility or gentility was a prerequisite, but at the same time they had to know enough about navigation and war at sea to fight the ship in a battle that relied less and less on the traditional hand-to-hand combat skills with which a gentleman would be familiar from combat ashore. In England the Commonwealth navy had been officered by professional soldiers and many professional seamen from the Thames-side maritime communities. These "tarpaulins" had not been entirely acceptable to the restored Stuart monarchs, who slowly increased the number of "gentleman" officers. It was quickly understood that the gentlemen's competence was questionable. In 1661 the "volunteer per order" was instituted by which young gentlemen between 11 and 16 years old were taken aboard ships to learn their profession under the eye of the captain. These young gentlemen were rated as "midshipmen ordinary". The non-commissioned sailing master was held accountable for the navigation of the ship. This responsible position from which promotion to captain was once possible, gradually became a dead-end for a career, but was one to which common seamen might aspire. In 1677 an examination and

minimum service was introduced for lieutenants. In 1702 an Order in Council insisted that the teaching of navigation be undertaken by a holder of a Trinity House certificate. It was not until 1729 that a shore-based academy at Portsmouth was opened. It possessed a formal curriculum of arithmetic, writing, gunnery, fortifications, maths, drawing and dockyard repair work, but it never became a required route for aspiring officers. Navigation and seamanship remained the preserve of experience and teaching aboard ship.[70] This was the basis of the professional training of British naval officers throughout the rest of the period of the sailing navy.

France and Spain possessed much more formal methods of professional training. There was no formal officer corps in the French navy much before the 1670s. The corps evolved out of the bodyguard to the Admiral of France, which after some vicissitudes, became a united, formal body of aspirant naval officers, the Gardes de la Marine, in 1686. Recruitment fluctuated with a tempo that reflected Louis XIV's personal interest in his navy rather than any assessment of needs, so there were never enough of them to man the expanding fleet. Other officers, commonly called "les bleus", were drawn from the merchant service on a temporary basis to command the smaller ships of the fleet. Throughout the history of the French sailing navy, there was a tension between the desire of the court to limit recruitment into the officer corps to the Gardes and the need to provide officers for all the ships. The most senior officers in this period were, naturally, drawn from the court circle. To support these noble officers schools were opened. In 1665 a school of hydrography was opened at Dieppe. A chair of hydrography was established at Nantes in 1671 and another at Rennes in 1677. In 1669 a college was opened at St Malo. A school for the Gardes was established at Indret in 1681 and Rochefort in 1682. The concept of the Gardes was borrowed from the army, and the teaching was to provide the basic education for an officer rather than practical seamanship. The curriculum was more theoretical than practical. Much of the teaching and research was in the hands of the Jesuits. Maths, navigation, artillery, construction, manoeuvre, fortification, dancing and language provided the theoretical framework with which the officer could make sense of the experience of war at sea.[71] The Spanish navy, under the new Bourbon monarch developed its professional education along the same lines as the French after 1714. In 1717 the Guardias Marinas were established at Cadiz, with a curriculum that reflected other officer training establishments.[72] Much more work is needed to be confident that a significant differential in professional competence emerged between the officer corps of the various nations as a result of the formal training procedures. Far less confidence can be placed in any conclusions regarding the impact

of the various training procedures on the eventual performance in battle of the officers. It is an important issue which is under-researched, but which could yield some interesting information about the emergence of modern naval power.

The handling of navies: tactics and strategy

Ultimately, the value of the resources organized by a state into a naval force are tested in battle. There are many factors that influence the outcome of any conflict, but central is the way in which the campaign is conceived and developed or the battle is fought–naval strategy and tactics. Most professional study of naval history has focused upon these very issues. In the last decades of the eighteenth century increasing attention was paid to the tactical handling of fleets, but it was only in the nineteenth century that naval strategy began to be studied seriously.[73] Mahan's *Influence of sea power* represented the point at which the issues of naval strategy began to impinge strongly on the popular imagination. He was particularly concerned to draw out the enduring strategic principles of naval warfare. Although he made many valuable points about naval tactics, especially in the sections on the American War of 1778–83, he paid much less attention to the tactics of sailing navies, which he believed had little relevance to a steam navy.[74]

Mahan showed that the line of battle was not a uniform or unvaried tactic, but there was, and remains, a deeply entrenched assumption that a tactical sterility set in around the 1660s with the dominance of the line of battle that was unbroken until the 1780s. Battles are claimed to be little more than indecisive formal cannonades as neither side would dare to disrupt or fracture its own line of battle in order to inflict decisive damage upon the other. It is undoubtedly true that the line of battle was the dominant tactical formation throughout this period, but recent research and analysis has reinforced Mahan's description of the battles and diminished the excessive caracature. Contemporaries were well aware of the power of the line as battleships increased in size and armament, but not in manoeuvrability. The fighting instructions that prescribed the line were an excellent means of instilling obedience in captains who were more used to fighting their own ship fairly independently in a mêlée. It also provided a clear course of action for commanders whose professional abilities were highly variable. In short, it was an efficient way of bringing the maximum weight of fire upon the enemy, while not exposing the vulnerable stem and stem of the vessels or risking having individual ships cut off and boarded piecemeal.

The most famous exposition of this tactic was produced by the Jesuit, Père Paul Hoste, who acted as chaplain to both d'Estrées and Tourville during his career. Hoste was a mathematician who applied his discipline to war at sea, examining signals, ship construction and manoeuvres, but it was his *Art des armées navales ou traite des évolutions* (1697) which became the most significant theoretical exposition of the naval tactics during the first half of the eighteenth century. Hoste experienced fleet actions close to a senior commander, Tourville, and drew his conclusions from historical example. He believed that the conduct of the English fleet under the Duke of York at Lowestoft in 1665 was an excellent example of how a line could deliver maximum firepower upon the enemy. However, his explanation of fleet movements was highly geometrical, and Hoste drew upon himself the condemnation of later generations for advocating an apparently prescriptive and sterile tactical approach, particularly in the wake of the disasters suffered by the French navy in the Seven Years' War. As early as 1763, Bigot de Morogues characterized Hoste as confusing and misleading naval officers. The precise influence of Hoste's work is very difficult to calculate as it must be questioned how far officers were interested in Hoste's detailed descriptions or accepted the practicality of managing a fleet at sea as he described. How officers learned tactics is far from clear. Evidence of the number of books on nautical subjects published between 1688 and 1763 suggests that there was a growing literate market, but what role these books played in educating an officer cannot be easily determined. Experience with a fleet was a powerful learning opportunity and the sailing and fighting instructions, which governed their performance, had the powerful weight of law. The English fighting instructions suggest that they evolved as a result of experience rather than reference to theoretical speculation, while Hoste's work was not translated into English until 1763–the very point when it was being questioned in France. French naval education was more formal, which may have given Hoste a greater influence, but he may equally have been a convenient scapegoat for Bigot. Detailed reading of Hoste suggested to Michel Depeyre that he was not as prescriptive or inflexible as his later detractors claimed.[75] Hoste's message got confounded by his method. He reflected what he saw at sea and rationalized it according to the training that he had. He was aware of the primary need to bring maximum firepower to bear on the enemy and his mathematical training and his understanding of war on land may have induced him to present a model of movement that was consistent with his observations and his reading of history. The wind, the primitive art of signals, the poor manoeuvrability of battleships and the variable discipline and competence of officers made precise movements very difficult. A plan for one form of attack could rapidly evolve into something entirely different. Although fighting instructions nominally

made naval tactics for a battlefleet reasonably clear during this period, battles evolved with far less predictability. Far from being formalized combats by unimaginative commanders, control of naval battles was only gradually gained by the commanders over the period of the sailing navies. How this happened is a critical question for the development of naval power in the eighteenth century.

The embryonic nature of tactics in 1688 is also highlighted by the fact that a number of aspects of seapower were untested or unknown in the more hostile waters outside the Mediterranean. The Mediterranean powers had considerable experience of amphibious operations, shore bombardments, inshore small boat actions and river actions, and managed combined sailing and galley fleets with some skill. Similar operations elsewhere demanded different skills and vessels, all of which needed to be tested before a clear tactical approach could emerge. The picture of the period 1688–1793 as one of tactical sterility is therefore highly misleading. It was, on the contrary, a period of significant development as control over large fleets became firmer and the operational flexibility of fleets improved.

While naval tactics were in a recognizable but still embryonic form, the concept of naval strategy hardly existed at all. The naval forces available to the various states presented them with a number of opportunities, but the weapons had not produced decisive results in previous conflicts. The potential geographical scale of maritime conflict was expanding, and no one could be sure what the impact of naval war on trade, colonies or European military affairs would be. No one was certain of the best way of handling this expanding, expensive and complex force.

By the 1680s, the battlefleet was the basis of every state's naval power. The wars that took place between 1688 and 1713 presented the European powers with a series of new opportunities and problems. Oceanic naval operations began to assume growing importance and it was these campaigns between battlefleets for the world's sea lines of communication that dominated the views of historians like Mahan. The battlefleet was an essential element, but the diplomatic impact of seapower depended in the last resort on the capability of states to apply decisive force to their enemies ashore across the world, by amphibious operations, commerce destruction and blockade. The wars of the early eighteenth century continued the process of developing this capability more dramatically than ever before.

Chapter Six

The Nine Years War (1688-97) and the War of Spanish Succession (1701-13)

1689-90: Bantry Bay and Beachy Head

War between France and the United Provinces had broken out in November 1688, before William reached London, but France was in no condition to mount a major naval campaign in Atlantic waters. The Mediterranean had dominated French naval resources during the 1680s. Although a major building programme was underway and the ships available for service, particularly the largest classes of battleship, were strong, they were also ageing and in poor repair. In 1690, only 17 of the 116 ships on the naval establishment were under ten years old. At Brest many of the 45 warships were unseaworthy. Stores for repairs and victuals were inadequate. Gunpowder, tar and hemp were in very short supply. Money was scarce and the administrators had neither the time nor experience to build contacts with domestic and overseas merchants quickly.

Whether England would resist or succumb in the autumn of 1688 was unknown, but the Minister of Marine, the Marquis de Seignelay, could not hope to mount a direct challenge to the large Dutch forces in the Channel and North Sea. Instead, the war proceeded along lines that had proved successful in the 1670s. Dutch commerce was the main target at sea. As early as September, Dutch vessels in French ports had been seized and the Intendants at Brest and Dunkirk were ordered to fit out royal warships as privateers. This concentrated the very limited resources on the smaller fourth- and fifth-rate warships. Furthermore, these vessels, armed and manned, could be hired out to entrepreneurs, *armateurs*, from whom part of the costs could be recovered. The demand was tremendous, but in early October fears of Dutch counter-attacks forced Louis to revoke the contracts in order to have the ships available to protect French

commerce. Nevertheless, the *armateurs* were encouraged to fit out their own vessels as quickly as possible and a *guerre de course* began which inflicted mounting losses upon allied shipping until 1692. The Dutch colonies in the West Indies had also proved vulnerable in the previous war and the Count de Blénac, the Governor of Martinique, was instructed to attack St Eustatius with six men-of-war.

William reacted to the immediate demands placed upon him. He wanted English reimbursement for the United Provinces and support for the war against France, but until he could be sure of the support of the City and parliament for the constitutional settlement and a confirmed treaty of assistance between England and the United Provinces, he needed to keep defence costs to a minimum. He sent the Dutch fleet home. In early January 1689 small cruising squadrons were detailed for the Channel and the Irish Sea and a larger squadron of 15 was prepared for the Mediterranean, where the French threat to trade and Spain was the greatest. The rest of Dartmouth's fleet was to remain at the Nore in reserve.

William was aware of the danger in Ireland where the viceroy, Tyrconnel, had not submitted, but James II's landing in Ireland on 12 March 1689 (o.s.), under the protection of 12 French warships from Brest, took him by surprise. The crisis in Ireland rapidly escalated. Troops were already being organized and Arthur Herbert was hurrying to fit out the Channel squadron, but his instructions remained confused. England and France were not at war and Herbert was ordered only to attack French warships within 20 leagues of the Irish coast.[1] After news arrived of James' landing, he was then required to go over to Brest to prevent the French naval forces coming out again.

As Herbert cruised with his squadron of 18 battleships in poor weather off the Irish coast, the French naval administration managed to fit out a total of 25 battleships, including five that had come from the Mediterranean under the Comte de Chateau-renault, who sailed in command of the force from Brest on 26 April (o.s.). The expedition was to take reinforcements to the Jacobites in Ireland. On 30 April, Chateau-renault's force anchored in Bantry Bay and began to disembark the forces. Herbert had heard of the French expedition and followed. On the morning of 1 May the fleets sighted each other. Chateau-renault left the landing and with the wind behind him bore down on Herbert in good order. Herbert moved out of the bay to give himself room to manoeuvre and organize his line. The lines closed and the battle lasted from about noon to 4.30 in the afternoon, when Chateau-renault bore back into the bay with the tide to complete the landing task rather than be drawn out into the ocean. Apart from one French ship, damage was limited, but neither side sought further combat when Chateau-renault made his way back to Brest two days later.[2]

The impact of the battle is unclear. Both sides were reasonably sure that they had done all they could and both were aware that they needed to do more if they were to be secure in these waters. In London, rumours that the Toulon squadron would come to Brest induced William to agree to unite the Dutch and English fleets. On 1 June, Herbert, newly ennobled as the Earl of Torrington, was put in command of the joint fleet. Torrington's principal instruction was to stop the Brest and Toulon squadrons meeting. To do this he was to cruise off Brest. By 14 June, Torrington was at sea with 29 battleships, and by early July his force numbered about 70 warships cruising between the Irish coast and Ushant.

Seignelay's reaction was slower. He could bring the Toulon squadron to Brest, under his protégé, the Comte de Tourville, but it was unclear if it was needed. By mid-June Seignelay had reports from Rochefort and Brest that they could not fit out the vessels he expected, and he began to appreciate the remarkable speed with which the allies were expanding Torrington's squadron. The Toulon squadron would be required and on 19 June (o.s.) Seignelay ordered Tourville to Brest with 20 battleships.[3] Tourville had done a great deal to drill his officers and by the time his force approached Brittany, they were in excellent condition to manoeuvre or fight. By good seamanship and some fortune, Tourville slipped past the allied fleet and arrived safely in Brest on 23 July.[4] Tourville now had a force of about 70 line and was ready for sea by mid-August.

The two forces were, therefore, roughly equal in numbers in the late summer of 1689. The conduct of the French at this stage has been particularly criticized by historians for their failure to understand the opportunity that they had before them. It is suggested that if after Bantry Bay they had kept to Irish waters they could have critically disrupted the Orangist reinforcements being sent to Ireland, which might have had a decisive effect on the siege of Londonderry. If Tourville had taken the opportunity to seek out Torrington, a victory would have rendered French support to James secure.[5] While there is some force in this argument, there are a number of factors that need to be considered. From the beginning, it was unclear where the Irish campaign was going, how the French should assist it or what contribution the campaign would make to the wider war. The fleet that Seignelay had assembled under Tourville had almost exhausted the stores that the navy possessed. Louis XIV was certainly aware that if this fleet was lost or crippled it could not be rapidly replaced and ordered that it should not be risked in the Channel. Battle with Torrington might have been decisive for the Irish campaign, but this was not obvious to Seignelay. Indeed, the paper strength of the French fleet in the Atlantic during 1689 is highly misleading. It was operating on the very edge of its supply and support capacity.

In the autumn of 1689 Seignelay tried to construct a practicable offensive policy based upon the fleet. Both he and Tourville saw the advantage of control of the Channel and the North Sea. Trade routes and communications between England and Holland could be disrupted. A force blockading the mouth of the Thames and raiding the coasts of England and Holland could seriously undermine William's use of English resources. Tourville ordered galleys to be constructed at Rochefort for coastal operations and Seignelay ordered stores to be gathered at Dunkirk for resupply of the fleet. Achieving a numerical parity was important and he had ordered six new ships of the line built in 1689 and 14 more during 1690. Seignelay knew the resources to supply the warships were very limited, but his desire to reap an early benefit from the forces he had gathered led him into serious problems. He wanted to use parts of the fleet to disrupt the allies over the winter. Amfréville was ordered to cruise in the Western Approaches with 20 line, but he was barely out two weeks before he was forced to return. Relingue was ordered to Dunkirk with ten line to support the privateering attack on the Baltic trade, but other duties and lack of supply meant that only four ships actually went out. In March 1690, Seignelay sent Amfréville to Ireland with troops. The expedition was a success, but did not get back to Brest until 21 April (o.s.) 1690 with many sick aboard. Over the winter, the ports had been overburdened by the demands of the combined French fleets. Prices had to be fixed in Brest and labour had to be forced in Brittany to get the ships prepared for sea. It was not until early June that the fleet was ready in Brest, and although short of water, victuals and gunpowder, Tourville sailed on 13 June with 76 line of battle destined for the Channel to prevent the junction of the English and Dutch fleets.

William and his naval advisors had meanwhile judged that they had sufficient force in the Channel and the Irish Sea to contain Tourville. Fifteen warships were detailed to Vice Admiral Henry Killigrew to go to Cadiz to watch for the rest of the Toulon fleet and to protect the trade with 15 Dutch warships. Admiral Russell was sent on a short expedition to La Coruña to convoy the Queen of Spain. Eleven other battleships were detached under Captain Lawrence Wright to the West Indies. Captain Cloudsley Shovell was ordered to convoy William to Ireland. The intention was that Russell's and Killigrew's ships should join Torrington's 56 English and Dutch battleships in the Channel as soon as their service was over, but delays meant that they had not arrived when Tourville was sighted at sea.

The battle of Beachy Head or Béveziers (30 June o.s. 1690) is one of the most famous or notorious in French and British naval history. Torrington did not want to fight at such a disadvantage, but was given positive orders by the Regency in London. The allies had the advantage of the wind, but a bending in the centre of the French line

and a poorly formed allied line meant that the French centre did not engage the English at the allied centre at close quarters. The two vans and rears fought stubborn battles. The French were able to concentrate their forces upon the van and double the allied line, placing the Dutch between two fires. After eight hours the wind fell and Torrington anchored, allowing the French to drift out of range on the ebb tide. The allies lost nine line-of-battle ships, all but one of which, the *Anne* (70), were Dutch. Six other vessels were destroyed, captured or expended as fireships. The French had not lost a ship. Torrington withdrew to the Gunfleet, where he hoped the presence of his fleet would deter any enemy action in the Thames estuary. The defeat caused an outcry in London and Amsterdam. There were concerns that an invasion was imminent and that Torrington had deliberately sacrificed the Dutch squadron to protect his own ships. Torrington was dismissed, imprisoned and court-martialled. He was subsequently acquitted, but never served again. The fleet was put into the joint command of three admirals, Sir Richard Haddock, Henry Killigrew and Sir John Ashby.

The battle gave Tourville freedom to move through the Channel and the Western Approaches, and he has been severely criticized for failing to deliver a decisive blow from the sea at this time. Seignelay, seriously ill and in the last weeks of his life, thought something should have been done, but it is likely that the whole plan was extremely optimistic. Tourville's force was equipped only for coastal raiding, and then only when the galleys joined him. He was short of all supplies, carried increasing numbers of sick, lacked pilots for the shallow Channel waters and could not seek shelter in a deep-water port. He might have sallied into the Channel and carried out some more impressive raids than he did. His one action was to burn some vessels in Teignmouth. However, there was little long-term damage that he could inflict. Tourville cruised for a few weeks and then withdrew to Brest.

The campaigns of 1689–90 seemed not to have decided anything in terms of naval power. News of William's victory at the Boyne on 14 July and the rapid collapse of James' cause removed Ireland as a possible theatre of operations. This might have been prevented by more aggressive French naval action during 1689. More forethought about exploiting victory in the Channel might have placed intense pressure upon the allies after Beachy Head. Yet both these possibilities ignore the fundamental weakness of the French navy on the Atlantic coast. The effort required to fit out the fleet in the early summers of 1689 and 1690 virtually exhausted the maritime resources that France had available. The French could not sustain a decisive advantage. They could not refit and expand as quickly as the allies after Bantry Bay. The *inscription maritime* had all but broken down by the end of 1690. The use of naval troops to fill the gaps in the ranks had been exhausted. Stores and ordnance were also exhausted. Time was needed to resupply the

fleet. They could not commit the massive resources required to maintain a battlefleet in the Channel from the shallow Channel ports, let alone the land forces for a full scale invasion. It may be argued that the willingness to take the risk was the critical factor that was missing, but neither Ireland nor the Channel offered clear prospects of decisive rewards for such a risk. As it was, France retained a precarious parity with the allies that prevented the latter from making significant use of their naval forces.

1691-2: Barfleur and La Hogue

During 1691 France still lacked any clear use for its fleet beyond holding in check the allied fleet. Seignelay died in November 1690 and his successor, Pontchartrain, had no power at court, and probably little personal interest, to counter the influence of the minister of war, Louvois, who opposed diverting resources away from the campaigns in Europe. Gradually, the greater maritime resources of the allies began to tell. Tourville was able to mobilize about 72 battleships again, but the allies put out over 80 under Admiral Russell. Tourville was ordered to undertake a cruise into the Atlantic to attack allied commerce, particularly the valuable Smyrna convoy, draw the allied fleet away from the coasts, exhaust them and avoid a battle that would damage his own fleet.[6] The subsequent *campagne du large*, was a brilliant piece of manoeuvring by Tourville, but its results impressed few people among the allies or in France.

Both Tourville and Russsell were criticized when they returned home, but once again the results hid the allies' slow but growing advantage. William had some difficulties with parliament, particularly over the conduct of naval policy and efficiency of the naval administration. This debate created some concern, but it may have had important effects. There was a long-standing belief in England that the fleet was the main defence of the state and an important offensive weapon. Parliament's interest in the naval war ensured that resources were provided even as a financial crisis was growing for the allies and France. As other resources, particularly manpower became scarce, parliament provided the legitimacy for developing the expedients used by government. Parliament was a means of linking the local administration with the national government. In France on the other hand there was no strong interest to argue for resources to be diverted to the navy as the financial crisis grew, nor was there a scrutiny of the administration. It may have been only Louvois' death in July 1691 that saved the navy from even further reduction.[7] In England important adjustments were being made to the base of operations. In January 1690 a dry dock was ordered at Plymouth which started the expansion of this port as the base for operations against France.[8]

The risk that Louis had refused in 1690 was finally taken in 1692, but in circumstances that were far less favourable than two years earlier. Louis was convinced that an invasion of England was practicable in support of the restoration of James. The expedition was poorly organized and slowly assembled. Seamen were difficult to find and nearly all other stores and victuals were short. Reinforcements of 13 ships under the Comte d'Estrées were expected from Toulon, but were delayed by adverse weather. These delays meant that for the first time in the war the combined allied fleet was at sea first. Tourville decided to sail on 2 May (o.s.) without waiting for d'Estrées. He could put some comfort in the fact that his ships were certainly stronger and bigger than the Dutch and the largest ones armed with heavier cannons than any of the allies, but he had only 44 ships to meet Russell with 84 line-of-battle ships.[9] The fleets met off Barfleur on 19 May (o.s.). Tourville's smaller force was doubled by the allies, despite desperate manoeuvres to refuse his van. Light winds and fogs made movement difficult, but allied attempts to use fireships failed. By evening Tourville had not lost a single ship, but had several in serious condition. He drew off with the tide at night towards the French coast to the west. As the French headed for Brest, the winds and battle damage forced them to seek shelter along the Breton coast. A large part of the fleet sheltered in the bay of La Hogue. The allies appeared off La Hogue on 22 May, where Vice Admiral Rooke led an attack with fireships. All 12 warships and several transports were destroyed. Three other ships, including Tourville's flagship, the *Soleil Royal* (106), were burned by Sir Ralph Delavall in Cherbourg Bay, and a further vessel was wrecked at Le Havre.

The material impact of the defeat was heavy but not decisive. The French had shown that their ships could sustain a terrible attack and their discipline generally held. New and stronger ships were built to replace the losses during 1693, but the parity with the allies in the Western Approaches that had existed in 1689–90 was clearly shattered for the foreseeable future. Despite crippling efforts, an invasion of Britain was unlikely to be successful and this placed a large question beside the purpose of a fleet in Atlantic waters. In 1693 Tourville would still be able to muster around 70 battleships at Brest, but their objective had to be clearer.

1693–4: Smyrna convoy and the Mediterranean

While a major attack on the allies in the Channel and North Sea was laid aside after 1692, the war on trade was continuing with some success. French privateers had experienced increasing success since 1689. Both sides mobilized their maritime

communities for war. Merchant ships employed on the long distance trades were routinely issued with letters of marque to enable them to make legal captures of enemy vessels should the opportunity arise. The disruption to the normal patterns of trade encouraged other merchants to invest their capital in specific privateering ventures. The greatest disruption was experienced in the North Sea and Channel trades. Allied trade with France was prohibited in 1689 and even the import of French goods into England was declared illegal. The Dutch carrying trade, which dominated bulk cargoes from France to the Baltic, was particularly hit. Swedish and Danish ships rapidly filled the gap to ferry wine, salt, timber and grain. Many of the unemployed Dutch coastal traders turned to privateering. From about 950 commissions issued in 1688 the number rose to 1,800 commissions by 1697.[10] Spain was allied to England and the Netherlands in this war against France, but the great days of the Flemish corsairs were long over. Cantabrican privateers traditionally preyed upon French coastal traffic in the Bay of Biscay, but these small corsairs were few in number and had very little impact on the oceanic trade routes.[11]

In England the prohibition on the import of French goods applied even to prize goods until 1692. This may have depressed the demand for privateering commissions, but only 490 commissions were issued during the entire war. Of these, possibly as few as 50 were to specialized privateer ships and over 30 were to small Channel Island vessels. The close economic ties between the Channel Islands and the Norman or Breton towns gave war and trade a very specific pattern which did not impact greatly on the wider war.[12] The very few London-owned privateers operated from the Channel ports. An act of 1692 legalized the import of French prize goods and allowed the owners and crew the entire value of the prize ship and four-fifths of the value of the cargo. The crown maintained its right to one-fifth of the value of a French-owned cargo, but waived its right to other condemned cargoes and one-tenth of the value of the ship. Although there was a major upsurge in activity during 1692 the number of captures settled down and in the last years of the war Royal Navy ships were again making the majority of captures (see Table 6.1).

In France privateering took on a much larger scale. Seignelay, like his father Colbert, saw the privateer as an essential element of seapower. The French army was the largest in western Europe and most of the diplomatic power of France was based upon this fact. The power of the army lay in its ability to occupy and ravage the territory of an enemy. Louis' campaigns in the Palatine and the Dutch provinces had shown that an army could, simultaneously, display a number of powerful attributes. It could demonstrate both terror and grandeur while exploiting the resources of the conquered enemy to

Table 6.1 Prizes taken during the war of 1689–97 and condemned at the High Court of Admiralty

	Taken by letter of marque ships	Taken by Royal Navy
1689	1	80
1690	27	43
1691	41	61
1692	101	71
1693	75	49
1694	59	82
1695	71	121
1696	71	114
1697	53	129
1698	10	27
1699	2	0

Source: W. R. Meyer, "English privateering in the war of 1688–1697", *Mariner's Mirror*, lxvii (1981), pp. 259–72.

sustain itself. Seapower could not do this as effectively. The grand royal battlefleet that Colbert built up was designed to display Louis' greatness and extend his *gloire* to the sea–particularly the Mediterranean, where Spain was effectively humbled. Its power was proved at Stromboli and Messina and its terror had been demonstrated at Genoa and Algiers. What it had not done was to sustain itself by the victories it achieved. Nor could it replicate these achievements in the Atlantic. Even in the Mediterranean, the battlefleet had not been able to impoverish its enemies or enrich France by its victories. In the Atlantic the battlefleet was unlike any other armed force of that Louis possessed–it could not dominate its rivals either by numbers or organization. It could not overawe or terrorize, let alone exploit the resources of the region. The battlefleet was, therefore, an important but limited weapon. Louis realized that serious damage to the enemy at sea, the Dutch, the Spanish or the Barbary states, was achieved not by a grand fleet but by detached and cruising squadrons or privateers.

The war had begun with encouragement to *armateurs*. Although heavily constrained by practical problems and ambiguities, French prize law was nominally more generous to the privateer than English or Dutch law. In the latter countries, free ships made free goods, so that the property of an enemy was secure from capture on neutral vessels so long as it was not defined as contraband. Neutral property on enemy ships was also

protected from seizure. In France the entire cargo of any enemy ship was condemned. Louis waived his traditional right to one-third of the value of prizes taken by royal vessels loaned to *armateurs*. He agreed to pay for the costs of repair, paid the crews while in port and bore the risk of loss in action.[13] After 1690 the loan of royal ships was limited to those carrying 44 cannons or less, but it still represented an important royal investment in the privateering war. The *armateurs* that hired royal vessels represented an elite, usually well connected at court and with financial support from Paris or Versailles. They invested in the large-scale privateering operations that ranged from Spitzbergen to Cadiz. The dramatic exploits of these privateers, usually combining private warships and royal frigates and led by men such as Jean Bart, St Pol, Claude de Forbin, Claude d'Amblimont and Jean Doublet, were celebrated in France far more than the achievements of the royal fleet.[14] Their seamanship was a match for any of the allied naval officers and their audacity was renowned. There were, however, others employed in the activity. Privateering was dominated by Dunkirk and St Malo. Most sailed in very small groups and there were many small vessels from Calais, Boulogne and Le Havre that preyed on allied commerce.[15] Irish privateers carrying commissions from the exiled King James between 1689 and 1692 and again after 1694 also played a part. Apart from the spectacular capture of specific convoys, such as Des Augier's attack on a convoy off the Lizard in August or Bart's seizure of 22 merchantmen from a Dutch convoy in November 1692, there was a continual pressure on allied commerce. By the end of the war St Malo had condemned or ransomed 1,275 allied ships and Dunkirk nearly 4,000. Other ships were taken by small privateers operating out of Martinique or large privateers who made their captures off the coast of North America and did not bring their prizes home.[16]

To France, this continuous pressure was a substantial result for seapower. The war was relatively cheap, gave the opportunity for investment and profit, and had clear diplomatic results. Both Louis and William were well aware that seapower might reap economic and diplomatic rewards, but the effects could be unpredictable and two-edged. The allied prohibition of trade with France was an attempt to damage French commerce. The exact impact on France at the time was incalculable, but it had the immediate effect of damaging the Dutch carrying trade and was to prove a bone of contention throughout the wars with France to 1713. The growth of Danish and Swedish shipping to fill the gap led to serious disputes with the northern crowns. Many bilateral treaties had defined the rights of neutrals in conflicts, but this war intensified the issues. Between 1689 and 1693 allied attempts to stop naval stores being sent to France and their demand to search neutral vessels were resisted by Denmark and Sweden, who seized allied vessels in reprisal. In 1693, they formed a "militant league", a fore-runner of

the Armed Neutralities of the next century. Allied naval power and the frictions between them led to its collapse, but the experience had an important effect in forcing the parties to examine and negotiate the legal basis and the practical control of neutral trade, which in turn was to have an important impact on the evolution of seapower.[17] The diplomatic effect of the exercise of sea power was also compounded by a political impact in England. From 1691 Parliament was pressing the government to attack St Malo and destroy the privateers. Combined with the bad news arriving from the campaign in Flanders during 1692, this was to put William under great pressure. The bad harvests of 1692 and 1693 meant that seizing grain shipments was having a greater importance to both sides. Whether this grain crisis was fundamental to the shift in French strategy, as Etienne Taillemite suggests, is unclear, but it was certainly a significant factor.[18] Other factors must include the recognition that the battlefleet had not proved decisive as an offensive weapon. It had demonstrated the same strengths as it had done since 1652. A dominant battlefleet close to its supporting bases could command narrow seaways, even if it could not prevent individual merchantmen or privateers from sailing. De Ruyter, Tourville and Torrington had all shown that a smaller fleet "in being" could neutralize most of the offensive capacity of the dominant fleet. In the Mediterranean the French possessed the dominant battlefleet without the challenge of a smaller fleet. Most military operations in the region took place along the littoral and relied more upon maritime logistical support than from the mountainous interior. The French sailing and galley fleets provided a major support for their land operations. D'Estrées had bombarded Barcelona and de Pontis had shattered Alicante during 1691. Neither operation had a decisive impact on the Spaniards, but the prospects for success were greater than in the Atlantic. There, French resources were rapidly exhausted so that even if numerical parity was achieved, they were unlikely to have the operational staying power to dominate the Channel, Irish Sea or North Sea for an extended period of time. On the other hand, allied offensive power had not proved significant. They could dominate the sea with their battlefleet, but they could not convert that domination into terrorizing or exploiting France. Landings on the French coast were discussed from 1691, but nothing was done. The privateers had not been stopped and coastal traffic had not been decisively interrupted. Indeed, despite the allied battlefleet, it was English and Dutch commerce that seemed to be suffering. Land campaigns in Flanders and the Rhineland were very little influenced by naval forces.

This was the background against which French naval policy gradually shifted. Although the defence of the Channel looks the paramount objective from English eyes, France was not under threat in the Channel nor could she achieve much of value there.

Before the war actually broke out Louis and William had seen that some damage could be inflicted by attacks in the West Indies. Blénac's capture of St Eustatius and St Kitts had led to outcries in England. In 1690 Captain Lawrence Wright's expedition of 13 warships was sent to restore the balance. He took St Eustatius and Marie Galante, but failed in his attack upon Guadaloupe in April 1691. In 1692 reinforcements from England and France restored an easy balance of force in the region. A further reinforcement of 11 ships under Commodore Francis Wheeler arrived at Barbados in March 1693, but after an abortive attack upon Martinique Wheeler left for home.[19] This offensive marked the end of expeditions until 1695, but by the end of 1692 it was clear that the greatest seaborne threat to France was in her colonies and her greatest offensive potential lay in the Mediterranean.

The French plan for 1693 was similar to 1691. Tourville was to cruise in search of the outward bound Smyrna convoy. This time Tourville was permitted to cruise south to the Straits, which he had wanted to do in 1691. By the time the allied fleet looked into Brest, Tourville had gone. He was sheltering in Lagos Bay on the Portuguese coast with 71 battleships, two frigates, 35 fireships and two galleys. The Smyrna convoy, of about 400 merchantmen, was heading south, escorted by 34 warships under Vice Admiral George Rooke. Many of the difficulties of squadrons intercepting large valuable escorted convoys were removed for Tourville. He knew the convoy was coming. It had not been alerted to his presence and had to pass close by as it headed for the Straits. Rooke, who was told of a French force at sea, could not believe it was the Brest fleet, but a division of it. The forces met on 17 June (o.s) 1693. The convoy scattered as Tourville gave chase. Two battleships and 32 merchantmen were captured. Twenty-seven others were destroyed and two more warships were burned in Gibraltar Bay.[20] The outcry in London was tremendous at this defeat. The economic depression brought on by bullion outflows to finance the war in Flanders, poor monetary control, harvest failures and the dislocation of trade as a result of the demands of the Royal Navy and the depredations of the French privateers was worsening.[21] Parliament was frustrated and anxious at the news of the disaster. Money would not be withheld from the naval war, but a price was exacted. In November the ministry under Nottingham fell and the commanding admirals were dismissed.[22]

Tourville had united with d'Estrée and the combined force of 94 line, 28 frigates and 30 fireships cruised up the east coast of Spain, burning allied ships as they went. Unfortunately, there was inadequate communication with the Duc de Noailles, whose army was fighting in Catalonia, and Tourville proceeded on to Toulon. In the following year, 1694, Chateau-renault brought more of the Atlantic fleet to the Mediterranean,

but once again it seems that the logistical support was breaking down. Tourville was only able to sail with 50 battleships He assisted Noailles at Palamos, but found again that co-ordination with the army was impossible. When he heard that Admiral Edward Russell had followed Chateau-renault south and joined the allied and Spanish fleet, he retired to Hyries Road, to the east of Toulon. The allied fleet numbered nearly 80 line of battle. Russell stayed off the Spanish coast that summer and prepared to return home, but before he did so, he was ordered by William to overwinter in the Mediterranean. Repair and refitting was carried out at Cadiz. The allies now had the ability to put a powerful fleet into the Mediterranean early in the new year.

1695-7: the limits of seapower

In 1694 French resources were stretched to breaking point. The mobilizations against Genoa and Spain in 1684 and 1686 had almost exhausted supplies, manpower and repair facilities at Toulon. The continuous and demanding campaigns from 1689 created severe pressure at all the ports of the kingdom. The administrators became more adept at finding stores and managing contracts, but the weaknesses here were compounded by a growing financial crisis experienced by all the belligerents. The harvest failures of 1692 and 1693 and the resulting famine in France led to the collapse of trade. Although the tax system was reformed to compel the nobility to pay, it was not enough to solve the fiscal problem. Money had to be borrowed at very high rates of interest and expenditure dramatically cut. The major cut fell on the royal navy, whose budget fell from 34 million livres to 24 million. This was a reaction to an immediate crisis rather than a long-term strategic decision. The main expenditure–war in the Rhineland–had to be maintained. The war on allied trade was bearing fruit, intensifying the allied financial crisis and enriching France. The attacks upon the grain convoys were a particular bonus. In the short term building was cancelled and supplies were run down, but Pontchartrain recognized that a battleship capability was essential and was to reconstruct the fleet after the war.[23]

In the Mediterranean, Tourville was directed to prepare land defences in case of an allied attack on Marseilles or Toulon. Assisting the siege of Barcelona was now impossible. On the Atlantic seaboard, nothing could be done. The allies, who had been considering operations against the French coast since 1691, had been forced into action by an angry parliament. Admiral Benbow bombarded St Malo in November 1693. A raid on a convoy in Bertheaume Bay near Brest did considerable damage. An attempt to land a

raiding force at Camaret Bay ended in disaster on 8 June (o.s.) 1694 and was followed by bombardments of Dieppe and Le Havre in July, leading to massive destruction. In September an attack was made upon Dunkirk, which was mostly remembered for the abortive use of Willem Meesters' "machines"–his explosive fireships. Dunkirk and Calais were bombarded in August 1695, inflicting some damage, but the allies were unable to risk a landing in the face of the French galleys and small ships.[24] An attack upon St Malo was less successful. In 1696, allied ships ranged further down the coast to La Rochelle, possibly hoping to raise a Protestant rebellion, but achieved very little. However, allied control of the Channel and North Sea was secure. No large concentrations of French shipping could pass. A plan to land 16,000 troops in Kent in support of a Jacobite rising in 1696 was impossible given the size of the assembled allied forces in the Channel.

In the last years of the war the allies were beginning to bring the terror of seapower to France, but little else. The fleet in the Mediterranean could support Spanish galleys co-operating with land forces or conducting amphibious operations against French-held islands like Ponza and deter any attempt by the French Toulon fleet to intervene. French domination of the western Mediterranean had been broken, but as elsewhere, the battlefleet could not project its power on land. Privateers continued to damage allied convoys from Bart's devastating attack on a Dutch convoy off the Dogger Bank in June 1696 to Forbin's cruise across the Mediterranean. Privateers or filibusters wrought damage upon the West Indian colonies. The control of the battlefleet, exercised at a distance from firm supporting bases, was also very fragile. In January 1697, the Comte de Pontis left Toulon for the West Indies. Admiral Neville, who had just arrived at Cadiz from England, decided that he had to follow de Pontis, leaving the Mediterranean open. A division was detached from Toulon to cover Cadiz and intercept the returning treasure fleet. The allies did not renew their watch in the Mediterranean and in June 1697, d'Estrées with nine warships and 30 galleys sailed from Toulon to assist Vendôme attack Barcelona. Attacked from the land and the sea, Barcelona surrendered on 10 August (n.s.).[25]

In other parts of the world, the impact of seapower was even more variable. English attacks on the French West Indies resumed in 1695. In February Captain Wilmot sailed with five warships to protect Jamaica and attack St Domingue. In May, Cap François, St Domingue, fell to English and Spanish forces, but disputes between the allies led to Wilmot abandoning the conquest. Neville, who arrived in the West Indies too late to prevent de Pontis capturing and abandoning Cartagena de las Indias, also failed to bring him to battle. Neville tried to make some amends by an abortive attack on Petit

Goave, St Domingue. Relations between the English and the Spaniards had long since broken down, and Neville was forced to sail for home having achieved nothing.

Although Louis and William recognized that dramatic damage could be inflicted in the West Indies at relatively little cost, it is questionable whether their operations were anything more than speculative. Their ability to sustain naval power in the Caribbean was extremely limited. Although French losses were somewhat smaller due to the shorter passage time, sickness during the Atlantic crossing was debilitating and exposure to yellow fever and malaria soon began to reduce both English and French squadrons. The largest battleships were not needed in these waters, nor could they have been maintained there without much more highly developed dockyard facilities. Neither side had any intention of keeping their expeditionary squadrons in the West Indies. They were sent to carry out specific operations and return to Europe before the ravages of disease and the wear and tear of tropical storms and the *terrido navalis* reduced their ships to ruins. Seapower was seen as a temporary support for the local forces to wreak havoc on the enemy plantations or at best to establish them as the new masters–so long as they could support themselves in the long run.[26]

Very few resources could be spared for North America, where the rival colonists fought each other around New York, New England, the St Lawrence, Newfoundland and Hudson Bay. In 1693, Admiral Wheeler was given discretionary orders to assist the New Englanders on his return from the West Indies if they decided to renew an attack upon Québec. When he arrived in Boston in June with his sickly crews, he found that the New Englanders had no intention of mounting such an expedition.[27] Wheeler sailed on to Newfoundland, where the French fishermen, settlers and a few soldiers had reduced most of the English settlements. He attacked the settlement of St Pierre but failed to press an attack upon the main French centre at Placentia. It was not until 1696 that an English squadron, under Commodore John Norris, was finally despatched to re-establish the English at their ravaged settlement of St Johns. The Marquis de Nesmond, who sailed from France with ten battleships, decided he could not risk dislodging Norris and sailed back to France, leaving Pierre Le Moyne d'Iberville with five ships, including a "44", to go on to Hudson Bay, where local raiding and counter-raiding had left the English in possession of the strategically important post of Fort York. The additional naval forces tipped the balance back in favour of the French, who drove the English from Fort York in September 1697 and dominated the bay. Once again, ships could not stay for long in these inhospitable waters and Nesmond withdrew when the campaign was over.[28]

Early in 1697, Louis decided to make peace despite the balance of advantage in Europe lying marginally with him. The prospects of further advantage looked dim with the dire financial position France faced. The allies were exhausted but they had held on and the war had little purpose in the light of Louis' concessions. Louis was prepared to relinquish all his conquests during the war and most of his conquests since 1684 and to recognize William as *de facto* king of England.[29] The question of Spanish succession could not be far in the future and Europe needed a breathing space to resolve the potential crises that Charles II's death could unleash.

The War of Spanish Succession 1701–13

1701–4: a West Indies strategy and the opening of the Mediterranean

The breathing space was far less than expected. Serious efforts were directed towards reaching a satisfactory agreement on the Spanish succession, but fate, which robbed the states of the best compromise candidate, and the intransigence of the Spaniards, who would not consent to their empire being divided, doomed the negotiations. When Charles died in November 1700, leaving the entire empire to Louis' second grandson, Philip of Anjou, the French king had to accept the will or see the succession offered to his Austrian rival. Louis could not deny the right of his grandson's succession under Charles's will, nor would he deny Philip's birthright of succession to the French throne should it fall to him. The potential union of the French throne with the entire Spanish empire was an extreme threat for England, the United Provinces and Austria.[30] Still, an alliance may not have been formed if Louis' actions had not exacerbated the fears of all of his rivals within a few months. French troops marched into Milan to forestall the Austrians who wanted to secure some of the Italian territories for themselves. In February 1701 the French invaded the Spanish Netherlands and ejected the Dutch garrisons from the barrier towns, which had become a fundamental objective of Dutch security since 1672. The trade to the Spanish empire was engrossed by France. In August 1701 the *asiento*, or contract for the supply of slaves to Spanish America, was passed to a French company. In September 1701 English and Dutch imports were prohibited in France and in October this prohibition was extended to Spanish ports. In September Châteaurenault was sent to Lisbon to join 12 Spanish ships to reinforce Portuguese support of the Franco-Spanish union in the wake of the treaty of June 1701. The control of Spanish

resources passed into French hands. In April the Comte de Coëtlogen took five line and two frigates to the West Indies to escort the Spanish treasure fleet home.[31] French privateers took to the sea to resume their damaging attacks on allied trade. For England, the worst blow fell in September 1701 when James II died and Louis recognized his son, James, as king of England.

William, and particularly the English parliament, had not wanted war, but these actions were intolerable. Philip had been recognized in April 1701 as king of Spain, in the hope that Louis would declare Philip's right to the French throne void and that the trade to the Spanish empire would remain open. None of this had happened and war was approaching, but there were a number of differences between this situation and the previous war. Seapower was going to be much more important in English plans than it had been just three years previously.

Diplomatic and domestic political factors converged to increase the importance of seapower in 1701. By 1697, William recognized that the war in Flanders was highly unpopular. This unpopularity had been growing since 1692 and was tied up with discontent over the escalating costs of the war, William's preoccupation with Dutch security and his favour for Dutch advisors. William's apparent neglect of parliamentary advice and English interest during the negotiations for the First Partition Treaty in 1698 had heightened this feeling of discontent. His apparent indifference that English Mediterranean trade was placed at risk by his agreement with France inheriting Naples and Sicily after the death of Charles II was resented. This was only one factor in the disintegration of the political consensus during the 1690s, but an important one. William finally recognized the power that commerce could have in English politics.

During the 1690s the Tories and most Whigs had come to accept that war at sea presented a major advantage to England. Engrossing the colonial trade of the enemy deprived Louis of critical financial resources and enriched England. The money generated by trade with the colonies could make war self-financing, while the Flanders campaigns only drained England of money and had not seriously damaged France. The attempt to sustain what D. W. Jones has called a "double forward commitment"–offensive war in Europe and at sea–during the 1690s had almost crippled the English economy, but those closest to William, notably the Earl of Marlborough and the Secretary at War, William Blathwayt, knew that the defeat of France depended on inflicting significant damage upon her European territorial position. This could only be done by a continental alliance and England's allies would only be willing to stay in the field if English forces stood alongside them, but William and his advisors also accepted that a maritime war had a role in weakening France.

The conduct of the naval war was also diplomatically important. Support for Austria in Italy and English Mediterranean trading interests required naval action in the Mediterranean, but Spain was now an enemy rather than an ally and operations would be more difficult without support from Cadiz and Alicante. In the Americas, the riches of the Spanish empire were now a tempting target that could sow seeds of discord among allies. Full scale operations in the West Indies were rejected, but limited action to damage the French and enrich England was good politics and diplomacy.[32] In September 1701 the Grand Alliance between England, the United Provinces and Austria was agreed. The Emperor's second son, Charles, was to inherit the Spanish Italian possessions, the Dutch barrier was to be restored and England and the Dutch were to have the right to retain any conquests they made in the West Indies.

Despite the political rhetoric there was no great dichotomy between "continentalists" and the partisans of a "blue water" naval war. In 1701 William concentrated his efforts on mobilizing a campaign in Flanders and allowed a complementary naval policy to be handled by a committee of the cabinet, headed by the Lord Treasurer, Godolphin. Godolphin had a good feel for the temper of the House of Commons and he quickly came to dominate the committee. William's death on 8 March (o.s.) 1702, marked a further point in the integration of naval and military strategy. Queen Anne and her cabinets handled the war as a strategic whole. The army, navy, financial and diplomatic resources were directed against France wherever there were opportunities to weaken her, divert her strength or prevent her from concentrating on a decisive point. A successful naval war might generate resources to prosecute the land war and create new options for campaigns in Spain and Italy. However, it was a strategy that spread British resources and implied that concentration was likely to enable the allies to dictate peace on French soil. It also carried the danger that these precious resources might be dissipated and result in a net loss to the critical land campaigns. It was fertile ground from which to reap political advantage by subtle changes in emphasis in the conduct of the war and provided the background to the intense Whig and Tory party conflict. Although the rhetoric of divergent strategies intensified during Queen Anne's reign, her ministries, dominated at different times by moderate Tories, Junto Whigs and High Tories, maintained a fundamentally consistent strategy of exploiting French weakness in whichever way seemed best suited to achieve British objectives.[33]

In September 1701 Vice Admiral John Benbow was sent to the West Indies with ten ships of the line to protect the English colonies and stop the *flota*, the Spanish treasure fleet from Cartagena de las Indias, from returning to Europe. By February 1702, under pressure from Godolphin, English policy was becoming more aggressive. Benbow was

ordered to clarify the ambiguous position of the Spanish colonies. If they wanted to become independent or declare allegiance to the Hapsburgs, he was to assist them. If they wanted to be neutral he was to ensure that he had access to their ports. If they declared for Philip V he was to attack them. A force of 4,000 was proposed to attack Havana under the Earl of Peterborough. The purpose was to destroy completely French influence in Spanish America.[34]

French naval forces had not recovered from the last war, and there was no question of challenging the allies in the Channel or North Sea, but Louis had been very quick to use his limited naval resources to support Philip's position.[35] With Philip in Madrid and no effective rival candidate, Spain was in alliance with France for the first time. French control over the Mediterranean was complete. Philip was able to visit his Neapolitan domains to receive their submission. French naval forces could dominate both the Ligurian and Adriatic coastlines of the Italian peninsula. The galley fleet was less important now that the traditional enemy, Spain, was an ally. The north coast of the western Mediterranean was largely in Bourbon hands. To the east, Venice had built up a significant sailing navy during the 1680s, amounting to 29 medium sized battleships by 1698. Venice had played an important part in the Holy League's war against Turkey (1683–98). Her forces had driven the Turks out of the Morea by 1687 and extended the war into the Aegean Sea. Her line of battleships acted as a cruising force that covered landings by galley forces and restricted the movement of Turkish forces. The Turkish sailing navy performed the same function. Neither fleet was able to prevent the movement of the galley forces, nor were they able to inflict decisive damage on the enemy's sailing fleet in the light and variable wind conditions of the Levant. On the few occasions the fleets met, failing winds caused the two sides to drift out of range and the accompanying galleys rescued any sailing warship under pressure. Nevertheless, the ships were crucial to maintain the lines of communication between the islands and outposts. The defeat of a Venetian squadron under Antonio Zeno off Chios on 9 February 1695 finally determined the Venetians to abandon the island.[36] When the war ended the Venetian fleet remained a powerful force in the Levant and France hoped that, with Venetian support, the Adriatic coastline of Italy could be made secure for the Bourbons and threaten any Austrian advance towards Naples. French ships arrived quickly in the Adriatic, threatening Trieste and Venice and impeding support for Prince Eugene's advance upon Milan.[37]

On the Atlantic coast, Portugal was brought in and secured by a naval demonstration. Coëtlogen was expected back with the treasure fleet which would finance the next stages of the conflict. War with England and the United Provinces was not declared until May

1702, but the news that Benbow had gone to the West Indies induced Pontchartrain in October to despatch Château-renault from Lisbon with 27 line and three frigates to reinforce Coëtlogen. Château-renault arrived at Port Royale, Martinique on 2 January (n.s.) 1702.

Coëtlogen had sailed on to La Vera Cruz, where he had met with no co-operation from the Spaniards who would neither assist him nor permit him to escort the treasure ships. With diminishing crews and vessels in poor condition, Coëtlogen sailed for France in January, just as Château-renault arrived in the Caribbean. Benbow was at Jamaica, gradually receiving reinforcements, but never enough to allow him to challenge Château-renault. France, too, had decided to increase the pressure in the Caribbean and Pontchartrain sent orders for Château-renault to attack Barbados. These orders were considered by a council of war, together with a plan to attack Jamaica, but it was concluded that they had insufficient landing forces to be successful at either place. Disease, wear and tear and the lack of repair facilities meant that he had to do something quickly. Realizing that Coëtlogen had not taken the treasure fleet home, Château-renault sent his larger ships home and sailed on to Havana with 18 line to convince the Spaniards that they must allow him to convoy the treasure. Château-renault personally went to La Vera Cruz, from where he escorted the treasure ships to join with the bulk of his fleet at Havana. By the time he returned to Havana his squadron was suffering badly from the ravages of yellow fever.[38] He made quick preparations and he departed with the treasure fleet for Spain.

In the meantime, additional forces were arriving in the region. Commodore William Whetstone arrived in May with additional forces for Benbow, while Du Casse brought eight ships and a frigate from La Coruña with reinforcements for Cartagena de las Indias. Du Casse was off Porto Rico in early August 1702. Benbow heard that Du Casse was heading towards Porto Bello, and sailed with seven warships to meet him. Benbow met Du Casse's smaller force of five warships off the river Santa Marta on 19 August. After an indecisive clash in which Benbow was mortally wounded, Du Casse escaped to reach St Domingue. The blame for the failure fell squarely upon six of Benbow's seven captains, who had refused to engage the French closely. Two were convicted of cowardice and shot, one died awaiting trial and three were cashiered.

In England the scandal rekindled public concern about the effectiveness of the navy, but the naval balance in the region was still in the allies' favour. Du Casse found that he could not refit and resupply his small squadron effectively and returned to Europe. In September 1702, Commodore Hovenden Walker was detached from Rooke's fleet to assist in the destruction of the French plantations, but the subsequent attack on Guadaloupe in March–May 1703 failed miserably, leading to mutual recriminations

between Walker and the governor of Antigua, Christopher Coddrington.[39] The Admiralty and Godolphin had wanted to renew the attacks upon the French in the West Indies and North America, by sending more forces out early in 1703, but attention was gradually turning elsewhere.[40] England's ability to achieve decisive results in the Caribbean had proven lacking.

The other great objective was to open the Mediterranean. In 1702 Admiral Rooke was given command of a force of 30 English and 20 Dutch battleships together with frigates, bombships, fireships and tenders which was assembled at Spithead. An army, under the Duke of Ormonde and Baron de Sparre consisting of 13,000 English and Dutch troops was embarked for the operation, which sailed to attack Cadiz in mid-June 1702. Not only would success here have a great impact on Spain and the Barbary States, but it was hoped that it would force Chateau-renault and the returning treasure fleet to divert to Brest, where it could be intercepted by Admiral Shovell with an allied squadron in the Western Approaches.

The expeditionary force landed on 15 August 1702 and marched towards Cadiz, but ill-discipline and the inability of the ships to support the land forces slowed the advance and eventually led to the decision to re-embark on 15 September. Fortuitously, Rooke and his colleagues heard that Château-renault had arrived at Vigo Bay on the northwestern coast of Spain with the treasure ships. In the light of their failure at Cadiz they agreed to attempt Vigo Bay. The attack was launched on 12 October 1702. The breaking of the boom, the landing and the destruction of the defending batteries and the Bourbon ships within the bay created great celebration. Most of the bullion had already left Vigo and only a very small fraction was taken, worth possibly £14,000 out of over £13.5m, and some of this belonged to English and Dutch merchants, who may have had a claim to about one-third of the entire bullion shipment.[41] The net result might have been substantial damage to allied merchants, but as a feat of arms it was important. Fifteen French warships and 13 Spanish warships plus frigates and galleons were either burned or captured. Eleven ships were added to the allied fleets. French naval power was significantly weakened. The fame of the battle may have played an important part in causing Portugal to abandon its treaty with the Bourbons and join the Grand Alliance. With Lisbon open to the allies as a naval base, operation in the Mediterranean became a distinct possibility. It may also have raised expectations about the ability of amphibious forces to achieve great results on the European mainland that continued to have repercussions nearly 40 years later.[42]

By the end of 1702, the most significant operations by the Grand Alliance had been on the sea. Great things had been expected, but apart from Vigo Bay, nothing spectacular

had been achieved. The French West Indian colonies had not fallen and the authorities in Spanish America remained loyal to the new Bourbon king. However, some important changes had taken place. France had been on the defensive throughout the campaigns. The widespread operations had left her exhausted in Atlantic waters and, after Vigo Bay, clearly suffering significant losses. These would be made up by new building, but the attrition on her ports' manpower was significant and her freedom of action in the meantime, while she husbanded her resources, was restricted. Although very popular in England, the West Indian operations had not been popular with either the Austrians or the Dutch, who saw them as strengthening Spanish resolve to resist a settlement in Europe. The possibility of operating in the Mediterranean in support of the Austrians in Italy was much more attractive to them and by January 1703, England gave up the grand plan it had for sending large forces to the Caribbean under the Earl of Peterborough. The forces would now be held for operations in Europe.[43]

Throughout 1703, the prospects for a Mediterranean campaign improved. The Methuen Treaties of May 1703 tied Portugal to the Grand Alliance. Although the treaties established an extremely important commercial agreement between Portugal and England, they also brought about a major change in the war aims of the Alliance. King Peter II recognized that a land war with Spain would follow. He demanded 12,000 allied troops to support his army and that a Hapsburg claimant for the Spanish throne be proclaimed. Austria was prepared to elevate Charles' claim from Naples to the entire Spanish monarchy so long as the troops were supplied by England and Holland, and on 13 September 1703 Charles was proclaimed Charles III and began his journey via England to Lisbon and the campaign in Spain.[44] Other events over the summer strengthened the allied need to be present in the Mediterranean. Victor Amadeus, Duke of Savoy, was on the verge of deserting his French allies, fearful of annexation. In August Sir Cloudesley Shovell was ordered from Lisbon into the Mediterranean. He was to try to raise the Cervennois protestants in the south of France, to make contact with Austrians and the Barbary states and to try to induce the Duke to make the break. Significantly, the Toulon fleet did not try to challenge Shovell as he made for the Savoyard ports of Villefranche and Nice. What effect this display and evident French weakness at sea had on Victor Amadeus is not clear, but the French reaction of disarming the Savoyards with the French army finally led him to declare for the Alliance in October 1703.

By early 1704, despite the disappointments in the West Indies, seapower had opened a number of options for the allies. It had not significantly damaged France and the options available were two-edged swords. Savoy might offer an avenue into the south of France, where the protestant Cervennois might be induced to rise up against the French

authorities. Spain might open a theatre that drained French resources from the battles in the north. On the other hand, both these theatres might divert precious allied resources to support ailing initiatives.

While the allied army in Flanders was cautiously watching the movements of Louis' main field army as it shifted its centre of balance towards the German frontier, the allied naval forces were committed to the opportunities that had been opened in 1703. Sir George Rooke sailed with 17 English and 14 Dutch line of battle in a fleet that carried Charles III and an army for Spain. Charles III began the campaign in Extramadura, which went rather badly throughout the year. Meanwhile, with Lisbon established as the main supply base for allies, Rooke proceeded into the Mediterranean. He had with him Charles III's representative, the Prince of Hesse Darmstadt, as the commander of a small expeditionary army. Rooke explored the prospects of an attack upon Toulon with the Savoyards and Cervennois, but the condition of Savoy did not promise success so they sailed off to Barcelona, the capital of Catalunia. The city was held by the Bourbons, but the province had renewed its revolt against government from Madrid. A bombardment and attack on the city was a failure, and rather than risk alienating the province from the Hapsburgs Rooke and Hesse withdrew.

The threat posed by the allied operations in the Mediterranean had not gone unnoticed in Versailles, and the Comte de Toulouse was ordered to take the Brest fleet to unite with the Toulon fleet and counter allied operations. Rooke missed an opportunity to intercept Toulouse, who managed to unite the fleets at Toulon in June 1704. Rooke was now numerically inferior to Toulouse, who began to refit at Toulon. Rooke fell back to the Straits to join up with Shovell and took the opportunity to attack Gibraltar. This bay had long been used by the English squadrons operating in the Mediterranean and the attack had been planned on other occasions. On 21 July (o.s.), Hesse landed with the marines from the fleet. On 23 July (o.s.) the garrison surrendered after a heavy bombardment.

Toulouse was at Barcelona with the combined French fleet when he heard of the loss of Gibraltar and hurried south with his fleet of 50 line-of-battleships. He met the allied fleet of 53 ships off Malaga on 13 August (o.s.). Rooke's ships were running short of ammunition after the attack on Gibraltar. As usual, the theoretical lines of battle became disordered and spread out. The vans, well ahead of the centre divisions, engaged at about 10.00am and for a short while it seemed as though the French would break the English line and double their van. Rooke managed to close the gap and the battle became general along the line. By nightfall, the allied ships were beginning to run out of ammunition. Both sides were badly damaged. During the night, the French decided

that it was not worth renewing the battle and made sail to return to Toulon in the light winds.

The battle has not generally been viewed very favourably. Mahan considered it of "no military interest" and "wholly unscientific", demonstrating a degeneration of naval commanders from the days of de Ruyter, Monck and Tourville. French historians have usually seen it as a victory that was thrown away by Toulouse.[45] This is possibly a little harsh. Rooke was certainly not interested in coming to grips with the French pell-mell, but his objective was to preserve Gibraltar. During the battle he held the weather gauge and could force Toulouse to come to attack him, similar to the English position at the Gabbard in 1653. Rooke's line was disordered and he was forced into a fierce battle to preserve it, but he had no need to force a mêlée and too little ammunition to want an intense battle drawn out over a number of days. Toulouse, on the other hand, wanted to renew the battle on the following day, but his council of war believed that they would be unable to force a decisive victory or recapture Gibraltar. They constituted almost the entire naval strength of France, which, if they were beaten in a pointless battle, would not be recovered in the foreseeable future. By the end of 1703, Louis was turning towards the *guerre de course* and the fleet now with Toulouse represented the only major naval force that was left. To preserve it "in being" might have appeared preferable to wasting it prematurely.[46]

1705–8: exploitation of seapower in the Mediterranean

The Battle of Malaga secured Gibraltar. Allied numbers in the Mediterranean continued to grow at a faster rate than the combined fleet at Toulon could be refitted. The allies could no longer be challenged directly in the Mediterranean, but they were never strong enough to be powerful everywhere. Coastal communications between Spain and Italy remained open and the French fleet was able to make some important contributions to the Bourbon war effort. De Pontis with a small force assisted in the siege of Gibraltar at the end of the year, until forced off by a larger force under Sir John Leake from Lisbon. Subsequent actions against Gibraltar were no more successful, but galley forces were able to assist in the successful capture of Villefranche and Nice. Yet overall the French position was very weak. Their domination, established in the 1650s, had cracked within two years. The middle years of the war, 1705 to 1708, saw the allies being able to exploit the situation presented to them by their powerful fleets. The allied forces were

able to take Barcelona in October 1705.[47] This event had a major impact on English strategy. Resources were increasingly channelled into the Spanish war, which was seen as a real alternative to the Flanders campaign. Sir John Leake was able to relieve Barcelona when it was under siege during 1706 and take the naval port of Cartagena. In September, Leake took Majorca and Ibiza for the Hapsburgs. The great French recovery in Spain in 1707 could not be stopped from the sea, but Denia and Alicante were supplied from the sea and held out for the Hapsburgs until the winter and spring of 1708–9. In August 1707 a major operation was mounted against Toulon, which led to the destruction of the remaining French warships in the harbour but failed to take the city. In 1708 Leake captured Sardinia and landed a force on Minorca. The Bourbon position in Italy collapsed and the Pope declared Charles III king of Spain under the threat of allied naval power.[48] Thereafter, the fleet, established at Gibraltar and Port Mahon on Minorca, was able to maintain a permanent presence in the waters between Spain and Italy. It could supply allied positions, disrupt Bourbon traffic and influence events on the coasts, but it could not project the war far inland.

France also tried to use its naval forces offensively. Pierre Le Moyne d'Iberville had been planning the downfall of the English colonies in North America for years when he was finally commissioned by Louis to make a major attack upon them. With nine warships d'Iberville was sent to the Caribbean to seize Barbados, Jamaica or Carolina and raid up the coast to New York. Before he arrived there, another squadron under the Comte de Chavagnac had taken St Kitts in February 1706, alerting the English to the danger. D'Iberville found the region in arms. The combined force ravaged Nevis in April. The English forced him to go to Havana for reinforcements, where he died before he could execute the next phase of his plans. With yellow fever rife within it, the fleet withdrew.

1708–10: the search for a decisive use for seapower

By the end of 1708, the war in the Mediterranean and Flanders had settled down to hard campaigning. The hopes of a decisive action anywhere were dissipating quickly. Godolphin had to manage the war by carefully balancing his own moderate Tory inclinations with the more extreme Tory and Whig political rhetoric as the political pendulum swung back and forth. He was finding the task increasingly difficult. The Tory distaste for the Flanders war was rising as Marlborough failed to break into France

and much of the Flanders coast fell into French hands. The Whig Junta, which had seized upon "No Peace without Spain" as a slogan to distinguish themselves from the Tories and the Marlborough–Godolphin grouping, had found that Spain was hopelessly bogged down.

Allied naval power presented other options for breaking the stalemate. A French attempt to land forces in Scotland to support a Jacobite rising had been foiled in 1708 and it had led to a number of battalions being held in Britain in reserve. Descents on the French coast were planned, but the essential linkup with Marlborough's forces proved impossible. Once again the West Indies and now North America looked increasingly attractive. In 1707 a bill was introduced to allow adventurers to keep whatever lands they captured in the Caribbean. It was clear that the authorities in America remained loyal to Philip V and this made Spanish territory a legitimate target.[49] The colonists in North America were conducting a campaign against the coast of Cape Breton and Nova Scotia, and began an active lobbying for forces to be sent to support an attack upon Québec.

Nothing was achieved by the time the Tories won the general election of 1710. By then, the party rhetoric associated with strategy had become clearly established and was having a clear impact on decisions. The Tories would not support the war in Flanders, and while they would maintain the war in Spain, success looked unlikely. America looked like the only place where something substantial might be achieved in the short term. Their main hope lay in an attack upon Québec, which had been discussed in various forms since 1708–9. The Québec expedition, under Admiral Sir Hovenden Walker and Brigadier John Hill, with over 5,000 troops under escort of eight battleships and five smaller vessels, arrived at Boston on 24 June 1711. Walker and Hill found that the preparations and support promised by the colonists was not available and even the most rudimentary information about the St Lawrence was difficult to come by. Walker's largest ships could not be supported by the facilities in Boston and Walker decided to send them home. The expedition headed for the St Lawrence, but came to grief in fog in the mouth of the river where eight transports were wrecked. Neither Walker nor Hill had any faith in further operations and ordered the remaining forces back to England. By the time they arrived in October 1711, peace preliminaries were well underway.[50]

After the failure of d'Iberville's expedition in 1706, the French restricted their operations to ensuring the protection of the Spanish treasure fleet. Escorts were sent out under Du Casse in 1707 and later fast frigates were provided to carry the treasure to Europe. As in previous wars, the capture of treasure ships provided the possibility of spectacular prizes, but few were actually taken. In May 1708 Rear Admiral Wager captured

one ship from a treasure fleet off Cartagena. The treasure fleets were undoubtedly disrupted, but on the whole the treasure was successfully brought back to Europe.[51]

In 1711 more ambitious operations were again organized as joint ventures between private investors and the crown. Du Guay Trouin took a force of seven ships, six frigates and about 2,500 men to attack Rio. In a move that was to be common in later years, the expedition was organized from different ports in order to preserve secrecy. In September 1711 Du Guay's forces landed and captured the city. The ransom provided a good booty. In March 1712, a small force of three warships and five frigates under Cassard departed on a raid into the Caribbean. Monserrat, Antigua, Surinam, St Eustatius and Curaçao were attacked.

By 1711, the Tory government had decided to seek a peace with France and it was prepared to make that peace without the consent of its Dutch or Austrian allies. An important factor in this decision to abandon the Grand Alliance was related to another aspect of the war at sea–the continuous privateering war against commerce.

1702–13: the *guerre de course*

The *guerre de course* opened almost as soon as war was declared and followed much the same lines as it had done in the previous war. The scale of the privateering increased on both sides. In England letters of marque authorizing merchants to seize French vessels in reprisal for attacks upon them were issued within days of the declaration of war. The number of commissions rose steeply from the previous war–from 490 to 1,622. Even allowing for incomplete records in the Nine Years War, it suggests the annual average increased over 200 per cent. The number of prizes also rose strongly (see Table 6.2).

Whereas the Royal Navy had taken the lion's share of the prizes between 1689 and 1697, the majority were now being seized by armed merchantmen or privateers. Why this should have happened is not entirely clear. It was not so much a fall in the number of captures by Royal Navy vessels as a rise in the seizures by private ships. The Channel Island privateers dominated the prizes, albeit their prizes tended to be smaller coasting vessels. A certain professionalization of privateering had been taking place in the Islands.[52] Other ports such as Bristol, Liverpool, Whitehaven and the Devon ports took out more letters or appeared for the first time. It was probably the success of the French privateers that forced many of these merchants whose trade was being disrupted to take out letters of marque. Unlike in France or the Channel Islands, there does not appear to have been a real business developing from privateering at this stage. Obstacles still

Table 6.2 Prizes taken during the war of 1702–13 and condemned at the High Court of Admiralty

	Taken by letter of marque ships	Taken by Royal Navy
1702	24	131
1703	106	241
1704	109	112
1705	137	81
1706	111	64
1707	159	62
1708	115	81
1709	136	129
1710	124	103
1711	155	59

Source: W. B. Meyer, "English privateering in the War of Spanish Succession, 1703–1713", *Mariner's Mirror*, lxix (1983), p. 436.

remained for merchants. The Customs Commissioners refused to remit duties on captured French goods, although captured colonial produce was exempted. It was not until 1708, in the wake of a crisis created by French privateers, that the English government and parliament made significant changes to strengthen their own privateers. Privateers were allowed to make up their crews with a majority of foreign seamen and 20 foreign-built vessels were permitted to be registered as English privateers. The crown gave up its right to the Lord High Admiral's one-tenth of the value of prizes and one half of captures made by Royal Navy vessels in order to encourage the adventurers. The rise in official support for English privateering coincided with the beginning of the decline of the Dutch privateering effort. The subsidies provided by the States General ran out and the generous permissions given to neutrals reduced the scope for legitimate prizes.[53] Only two major English privateering expeditions were mounted in these years, by William Dampier and Woodes Rogers. They brought mixed results for the investors. Dampier's voyage to attack the Manila galleon in the Pacific (1703–7) was a business failure. Roger's voyage to the Pacific (1708–11) made approximately £148,000 for the investors, almost half the total made by all the Channel Island privateers during the war. The public celebrity of both these voyages may have been significant for the future. The prospect of booty in the Pacific was to be a theme that underpinned all potential operations against Spain from this period.[54]

Despite the growth of privateering, both in England and the United Provinces, there is little evidence that it had a significant impact upon the Bourbon states. There was a growing resentment against the Channel Islanders along the western coast of France, as local fishing and trading was disrupted. However, overall French trade did not suffer long-term dislocation during the war. After an initial decline in 1702, opportunities for trading with the Spaniards in the Caribbean and the Pacific were enthusiastically taken. Much of the vulnerable Baltic and Mediterranean traffic transferred to neutral Danish and Swedish ships. The recovery gathered pace and peaked in 1707–8. The depression of 1709–10 was followed by a steady recovery. While prosperity in the great ports rose and fell during the war years, it did not have a major impact on the conduct of the war.[55] The same could not be said of French privateering.

France revived the privateering war in the same way that it ended the last. Royal ships were made available to cruise with private warships. The disaster at Vigo Bay quickly reduced the availability of these ships, but this did not stop the privateer cruising forces or the individual privateers making substantial attacks upon allied commerce and even warships. Throughout 1703–5, the Chevalier de St Pol-Hercourt made a great name for himself attacking English cruisers and the convoy returning from Russia. Du Guay Trouin's forces cruised off the whaling grounds of Spitzbergen and in succeeding years, Forbin's ships from Dunkirk preyed upon the North Sea and Archangel trades. Privateers appeared off Senegal, the Caribbean islands and Newfoundland. Apart from these spectacular operations, many smaller vessels preyed on allied trade. Some 7,220 prizes have been recorded, nearly five times the allied totals.[56]

The privateering attack and the demands of the Royal Navy in the 1690s seriously dislocated English trade, but the situation was not repeated in the 1700s. The critical areas of maritime commerce which were established in the 1690s as a major part of the City of London credit system, particularly the Brazil and the East Indies trades, were not seriously damaged. Allied seaborne commerce was far greater than that of France and capable of bearing the losses. Nevertheless, although French privateering operations peaked in 1704, the political outcry continued to rise as particularly spectacular operations were carried out by French privateers. The crisis came to a head in 1708. After a year in which Forbin had devastated a convoy to Portugal in February 1707, Du Guay Trouin successfully attacked another convoy off Plymouth and there were repeated failures by Royal Navy vessels to defend merchant vessels. For a time it seemed as though the Queen's husband, Prince George of Denmark, the Lord High Admiral, would be censured by parliament. No political party wanted this and a compromise was quickly reached.

The 1708 Convoys and Cruisers Act revived the 1694 act, compelling the government to devote 43 ships to the protection of trade, but it was not a great success. Although the seizure of French privateers began to rise, the losses to merchantmen also rose. However, the compromise largely ended the political disputes over the matter. The coastal trade, which carried the greatest political danger, was better protected and the privateers took their prizes further afield, in the Mediterranean and North Atlantic.[57]

The allied merchant marine sustained the losses and the political damage had been contained, but as the war progressed, a further consequence of the privateering war became more pressing. There was a long-standing hostility between the English and the Dutch over the latter's trade with the Bourbon states. It was an important matter of contention throughout the war. Trade was critical to finance the war, yet part of that trade directly sustained the enemy. The Dutch had opposed Godolphin's original West Indian policy and once the allies had recognized Charles III as king of Spain and Spanish America was no longer an enemy territory but the empire of an ally, the Americas immediately became the scene of intense trade rivalry between England and the United Provinces. During the Nine Years War, the English had suspected that the Dutch had used their naval resources too much to defend their own commerce. The suspicion remained during the next war. The Dutch naval contingents had been slow to assemble and some of the costs of provisions had been put upon the English Navy Board. In 1704, the Dutch unilaterally withdrew ships from the allied fleet in the Mediterranean. Since 1704, the High Tories had agitated against the Dutch and the continental war. The Dutch were suspicious of English intentions in the West Indies and resented slow repayment of debts incurred in the Flanders campaigns. Mutual suspicion continued to fester and in 1710, when the Tories won the general election, they began secret negotiations with France. By October 1711 the preliminaries were agreed. Louis would recognize the Protestant Succession. The *asiento*, the monopoly contract to supply slaves to Spanish America, was to be taken from France and given to the new South Sea Company. France was to restore her conquests along the Hudson Bay. Newfoundland and St Kitts, which had been shared between Britain and France, were handed over to Britain, although French fishermen retained the right to dry their catches on the shores of the former. Gibraltar and Port Mahon were to remain in British hands. Britain was to receive "most favoured nation" status in trade with Spain and French merchants were excluded from Spanish America. The fortifications that had made Dunkirk a dangerous nest of privateers were to be demolished. There is no doubt

that the preliminaries, signed in October 1711, represented a major success for Britain when viewed from a maritime perspective.

The gains made in this war were clearly associated with success on the seas and the subsequent Tory campaign in favour of the preliminaries focused on shipping losses and the alleged duplicity of the Dutch as a justification for abandoning the allies. This was significant because this was the first occasion in which a ministry had to manage a major propaganda campaign in favour of its foreign policy proposals. War and peace were undoubtedly still the prerogative of the crown, but by 1712 the advice of parliament on these matters could no longer be ignored.[58] The relative value of continental and maritime strategies and the perceived power of naval forces had become part of the language of British politics, a means of justifying policy and a way of distinguishing between rival politicians.

War and the influence of seapower

Although the gains made in the final treaties of Utrecht in April 1713 had clear maritime connections, the relative contributions made by Marlborough's campaigns in Flanders, the war in Spain, the West Indies, North America and upon the high seas were not clear to contemporaries in Britain. Sir Julian Corbett claimed that the Royal Navy's operations in the Mediterranean had a decisive impact on French fortunes in Europe. While it is not doubted that France did not achieve anything like victory, it is not clear how much the naval campaigns wore down the French. It is certainly true that the demands of the war in Spain placed strain upon French recruitment–galley slaves had to be sent to fill up the ranks of the army there in 1712. It is also certain that the allied fleet dominated the Western Mediterranean. After the suspension of hostilities, the British fleet, under Admiral Jennings facilitated the movement of troops from both sides to their new agreed positions.[59] Seapower made it possible for the allies to operate in Spain, Southern France and Italy, but it could not significantly disrupt Bourbon operations in those theatres. French commerce was not driven off the seas and the French colonies in the Americas were not overwhelmed. France was not on the verge of a collapse caused by the sapping of her economic strength. From 1710 to 1714, French armies won significant victories against the allies, completing the conquest of Spain and driving the allies from their positions in Flanders.[60] The willingness of France to cede so many maritime points to Britain lay not in her despair but her desire to split the allies. Britain was

politically ripe for being bought and maritime concessions were a clear and limited price. On the other hand, it was precisely the fact that British maritime commerce and naval power gave succour in so many ways to the other allies that the removal of British influence was so important. The allied naval power destroyed the Franco-Portuguese alliance and stimulated Savoyard hostility to France, while British promises aborted the Gertrudenburg negotiations in 1709–10 which could have neutralized the United Provinces.

So far as the conduct of the war is concerned, a number of things had become clear. Britain had emerged as the pre-eminent naval power as far as the battlefleet was concerned. Numerically, the Royal Navy far exceeded any other naval force. More importantly, the British administration had been able to mobilize these ships consistently over the years. Britain now had the ships, administrative infrastructure and bases to maintain substantial squadrons in distant waters. All this was underpinned by the willingness of parliament to pay for this distribution. Parliament had taken a long while to become fully reconciled to the crown's maritime policies. Far more than the army, which, it was accepted, was the prerogative of the crown, the navy occupied the interest of parliament. Apart from the emotional factor of the navy being the bulwark against foreign or domestic despotism, its operations involved fiscal and colonial policy, in which parliament had a direct legitimate interest. Naval failures had led to attacks upon officers, investigations and the dismissal of some commanders, particularly in the 1690s. As the navy debt mounted, the House of Commons took increasing interest in the spending of the money. By 1708 the distrust that had been common in the 1690s had largely disappeared. Money was forthcoming for the fleet. Part of this increase in effective co-operation lay in the astute management of parliament by successive ministries. Parliament insisted on involving itself in naval affairs, and the handling of these expectations was critical. In some cases it was possible to avoid or evade parliamentary proposals, such as over the establishment of the Board of Trade in 1696. In others, such as proposals related to the encouragement of North American naval stores, or in parliamentary aspirations to demand ships for cruisers and convoys, it was necessary to work together. In still others, such as measures for manning the fleet, it was important to bow to parliamentary initiatives where the administration had apparently failed. The result was that parliament was well-informed, generally supportive and inclined to believe in the importance of the fleet to British foreign policy. Mahan claimed that by 1714 Britain had become "a seapower in the purest sense of the word, not only in fact, but also in consciousness". He overstated the case in the details and in his idea of "purity", but he was absolutely right that politically and financially the navy had confirmed itself at the very heart of the British state.[61]

The results of this political and financial support were important for other aspects of the navy. The administration not only kept the fleet at sea, but new facilities were provided. The challenge from France had raised the importance of the south coast and West Country to Britain's defence. The French deep water ports were well to the west of England and as early as 1689 attention was turned to Plymouth as a major base for the fleet. By 1700, it possessed a modern dry dock and fine warehouse facilities. Other ports were expanded and their facilities improved and made more permanent. After 1714, there was little investment until the middle of the century, but the basic infrastructure was carefully maintained.[62] The war had provided a group of administrators who had experienced this expansion and consistent wartime pressures.

Against this, France had not emerged from the war with a clear role for the navy. She still possessed the second largest navy in the world, but it had not proved possible to maintain a battlefleet challenge to the allies in European waters.[63] France had neither the numbers nor the staying power to mount an effective long-term challenge. This did not mean the battlefleet was redundant. The major successes of these wars had been in distant waters of the Caribbean or cruising against commerce. Fleets could not be kept out for long at great distances, but they had proved effective. Although the war against commerce, by royal squadrons or privateers, has been criticized, it was not at this point self-evidently less effective than an attack upon the enemy fleet. The effort of a direct challenge to the allied fleet was exhausting and while France did not appear particularly vulnerable to a war on commerce, the allies certainly did. France did not force the allies to peace by an attack upon commerce, but neither did the allies' battlefleet compel France to submit. The battlefleet had an important role to play, both in terms of general European diplomacy and in attacking colonies or commerce, but it would be performed in conjunction with privateers. Similarly, the United Provinces had found that the effort of maintaining its battlefleet was exhausting. The Channel and the North Sea were secure and the role of the fleet was to provide cruising squadrons for trade in more distant waters.

This period is one that is vital to the evolution of seapower under sail, but there are many questions that remain to be answered about the wars of 1688–1713. It is not known how the tactical doctrine of the line worked in practice over this period. The relative quality of the naval administrations needs much more work. A clear picture of how the officer corps were evolving as a profession is sorely needed.

From a British perspective, seapower had played a significant role in events up to 1713. The direct impact of allied seapower on the Bourbons may have been exaggerated, but it is no exaggeration to suggest that the British perceived their navy as playing a

vital role in the war and diplomacy of these years. It was not a perception that was shared by others. France and Holland maintained their naval forces but viewed their contribution to diplomacy differently. In the next three decades, diplomatic chance was to reinforce the British perspective of seapower.[64]

Chapter Seven

Seapower on the world stage, 1713-56

The treaties of Utrecht and Rastatt in 1713 and 1714 brought to an end the great wars that had convulsed Europe since 1688. Other wars, in Poland and Hungary, were still raging and were to have a major impact on the balance of power, but the European powers were exhausted and needed time to recover. A series of bilateral treaties, mostly concerning commercial relationships, followed to diminish as far as possible residual problems. Philip V had retained the throne of Spain and her American empire. Louis XIV died in September 1715, and the Duc d'Orléans, the Regent for the young Louis XV, wanted peace and kept a close eye on Philip to protect his own claims to the French throne. Philip had renounced his right of succession, which left Orléans in the line of succession should Louis die. However, if the young king did die there was no certainty about Philip's course of action. France had few other reasons to welcome war. The settlement in Germany, the Netherlands and the Mediterranean largely preserved French interests. France had made some important concessions in North America to detach Britain from the Grand Alliance, but her American colonies were secure and she could expect to penetrate the Spanish American empire by her commercial contacts in metropolitan Spain.

The French royal navy emerged from the wars far weaker than it entered them in 1688. Although shipbuilding had been generally maintained up to 1707 and the quality of the individual ships, particularly the new large two-deck 70-gun ships, was superior to their rivals, the operational capability of the fleet collapsed. The apparent success of the *guerre de course*, its popularity at court and the inability of the battlefleet to sustain concentrated naval campaigns led to the large royal warships playing a diminishing role in French maritime policy. By 1720, the French fleet was less than half the size of the

Dutch fleet and only one-fifth the size of the British fleet. The experience of the raiding war on commerce and the colonies was not, however, entirely negative. When France began to rebuild its fleet, in the early 1720s, it did so in the knowledge that its warships would be cruising at long distances from port. Endurance and seaworthiness were to be built into the next generation of French battleships. In 1725 it was determined to have a fleet of 54 line and 13 frigates and by 1731 the number of battleships had been built. The vessels, "74s", were one of the most successful basic battleship designs. They were larger than their equivalents in the British navy, seaworthy and armed with batteries of heavy guns. As more of them joined the French royal fleet, there was a distinct qualitative improvement that was to surprise the British.[1] It was not a fleet that could challenge the British in the Channel or Western Approaches, but almost anywhere else it was a formidable force.

The Dutch had also been exhausted by the war and natural disaster. The war had been the most costly in Dutch history and the need to focus resources on the land barrier against France took priority over all else. In alliance with Britain, the naval threats in local waters were very limited. The navy was still needed to protect the long distance trades to the Mediterranean, West and East Indies for which smaller battleships and cruisers were needed. Gradually, between 1715 and 1730, the great battleships fell out of service. A core of between 30 and 40 medium-sized battleships were maintained until the 1780s, while the number of smaller cruising warships remained steady, between 20 and 30 until the late 1760s.[2]

Britain, on the other hand, had a fleet that was second to none in 1713. It was at least double the size of any other organized fleet. In almost all factors that contributed to operational flexibility, the British had significant advantages. The deficit financing, made possible by the Bank of England (1694) and the political management of the naval affairs in parliament since 1688 had secured popular support and a sound financial basis. Long-term investment was practicable. Concern for economy and efficiency was second-nature to the country gentlemen and merchants who made up the House of Commons, but the crown found no difficulty in managing a national debt that had risen from £16.7 million in 1697 to £36.2 million by 1713 by pushing up taxation in a politically acceptable manner and using its military forces in line with the expectations of parliament.[3] The political debates over the use of the navy had also created a force that was organized to make the best use of seapower in the future. Although naval officers and administrators chaffed at the interference of parliament, demanding that the ships be used to protect trade, the dialogue may have had a positive impact upon the disposition of the fleet and its long-term capability.

The variety and power of the French *guerre de course* had forced Britain to develop a system of trade defence that was to serve it well. Convoys were vital to defend commerce against the mass of individual privateers, but they concentrated the target for the mixed privateering and royal squadrons that France despatched. It was losses to these attacks that had provoked the most significant political storms. Small cruising squadrons had been established at the critical choke points to provide additional protection. Permanent patrols had been established in the Channel, the Western Approaches, Port Mahon and in the West Indies.[4] Squadronal warfare had become the fundamental feature of British naval policy. It demanded officers capable of independent command, who understood the essence of tactical doctrine. To each of these squadrons were attached small cruising warships which gave junior officers the experience of command. Station ships were also established at the main ports of North America. The policy also demanded investment in dockyard facilities. The yards in Britain were maintained and slowly developed. In Plymouth plans for reorganization to improve the use of space were laid in 1717 and a second dry dock built by 1722. New perimeters were established at Portsmouth (1712) and Chatham (1716). The buildings and space at Portsmouth were reorganized and extended in 1717 and 1723. At Port Mahon the British inherited facitilities which were adequate until the great expansion of the Mediterranean squadron in 1739. Gibraltar was not such a good harbour, nor was Britain's hold upon it so clear until after the Spanish siege of 1726–7. Thereafter, building gradually began.[5] The confrontation with Spain in 1726 also stimulated building on Jamaica. The devastated town of Port Royal was rebuilt. On the north of the island, Port Antonio was built up at the same time. Facilities at English Habour, on Antigua, were developed to provide a secure base for warships in the hurricane season.

The development of these facilities is extremely well documented and the historical studies related to them are excellent.[6] However, in popular history it is usually the problems associated with these developments that are highlighted, such as the difficulty in getting skilled labour, the rapid deterioration of the facilities and their inadequacy when war came. These were real problems, reports of which fill the surviving records. As a result, the period between 1713 and 1739 is often portrayed as one of conservatism and complacency. No doubt this is partly owing to the consensus that British shipbuilding policy at this time was unimaginative and inferior to that in France and the popular belief that the tactical and strategic doctrine of the Royal Navy had settled into a generally defensive mentality.[7] This ignores the critical point that, by contemporary standards, major investment was taking place and that it was proceeding with a clear purpose. The records show that money was always short and that mistakes were made,

but the period was full of activity creating new precedents. Legal and administrative relationships between the naval commanders-in-chief on the overseas bases with the royal or military governors or with the Navy Board commissioners had to be worked out. Contracting procedures had to be clearly established and practical means created to get adequate stores and skilled labour to right places at the right time. Under pressure of war, particularly in 1739, the procedures showed signs of strain, but at least they were in place and were flexible enough to survive and strengthen the navy's power. As an organization the Royal Navy had become firmly established in the 1650s. It had achieved paramouncy as a naval force in Europe by 1713, and it was in the years between 1713 and 1739 that it laid the foundations for a global naval capability.

Spain and France also made considerable investments in overseas bases, but neither did so with the focus on providing a flexible naval power. France created Louisbourg, the fortress on Cape Breton. It became a focus for the British and French struggle at the mouth of the St Lawrence, but recent research has suggested that the fortresses did not occupy a critical position and, indeed, the justification for its construction may have been purely the absence of any other credible naval policy.[8] After the depredations of pirates for decades and the fall of Cartagena de las Indias to the French in 1697, Spain was very much aware of its weakness and began a major programme of extending the defences of its principal Caribbean cities. They were much more successful than Louisbourg. They had to protect the treasure fleet, and provided a base for privateers and a thriving local economy. However, unlike Britain, they were not built to give their naval forces more range and endurance. They were built in the knowledge that they did not have substantial naval forces to protect their commerce and colonies. Small local naval forces were all that could be raised. The port fortifications were a substitute for naval forces.[9]

Britain developed the infrastructure of its navy in other ways. The administration of the navy had gained considerable experience of successful naval operations. Senior naval officers served on the Admiralty commission, who advised the ministry on naval affairs. After 1713, the representation of naval officers on the board remained stable. Two officers in particular, Sir Charles Wager and Sir John Norris, provided a continuity of service on the board from 1718 to 1742. The former rose to be First Lord of the Admiralty in 1733 and the latter commander-in-chief of the fleet. The Secretary provided even greater continuity–Josiah Burchett served from 1694 to 1741. This access to informed naval opinion by the ministry was reinforced by naval officers in parliament and the investigations of the Board of Trade (1696).[10]

Perhaps only the Dutch had such a wealth of practical information at its fingertips, or an equivalent mechanism to inform public policy. In France a Conseil de Marine was

established in 1715, consisting of 11 naval officers and administrators, but their influence was restricted to fairly minor expeditions in the Mediterranean and Caribbean. The head of the council, the Comte de Toulouse, found his opinions neglected and no attention was paid to their views.[11] When the Comte de Maurepas became Secretary of the Marine in 1726, he also found that he was isolated in the ministry and largely unable to influence policy.[12] In 1714 Spain was on the brink of a major naval expansion. The administrative methods were copied from France and the results were excellent. Overall the fleet doubled in size between 1715 and 1730, while the number of line-of-battle ships quadrupled. However, the strategic employment of the fleet was not so easily understood in Spanish councils. An admiralty to co-ordinate naval resources was not created until 1737 and was suppressed in 1748. Although the system of command was clear and administrative procedures were successful, the gathering of advice was less comprehensive.[13]

The British officer corps had not performed universally well in the wars, particularly away from the grand fleet. In the West Indies there had been instances of disobedience and cowardice where relatively junior commanders-in-chief, who possessed great discretion in their orders, could provoke disputes with senior captains. Half pay had been conceded to all officers and masters in 1693, but restricted to a fixed number of each in 1700 based on seniority. This resulted in disputes over precedence, but may have been important in establishing the concept of continuous duty to the crown. The attention paid by parliament to naval affairs also made naval officers conscious of the need to justify their behaviour. From Torrington in 1690 to Sir Hovenden Walker after 1714, British naval officers publicly defended their actions. Although court martials and pamphlet battles are usually seen as symptoms of failure and division, they were also vehicles for explaining and transmitting naval policy, procedures and practice. Much more research is needed to determine the value of these channels of communication as learning processes for the officer corps, but it might be assumed at present that they were an important part of professional education, which was not as well developed in other states.

Unlike any other country, Britain possessed a public that was simultaneously well-informed about naval policy, emotionally attached to the navy as a weapon of defence, prepared to believe in its value in offence and willing to finance it. This informed a maritime policy that led to a substantial expansion of the naval infrastructure across the Atlantic and into the Mediterranean. The positive side of this was that the British navy was not only larger, but more professionally capable than any of its potential rivals during the 1720s. On the other hand, public and state expectations of the navy were progressively exaggerated and the diplomatic conditions of the time only served to feed these expectations.

The Baltic 1700–27

The most significant diplomatic change in the north during this period was the emergence of Russia as a Baltic maritime power. This had come about as the result of a long war. In March 1700, Danish forces had attacked the Swedes in Holstein. England and the Dutch intervened to restore peace during the year. Admiral Sir George Rooke commanded a fleet of 23 battleships and three frigates which was to join a Swedish fleet of 38 warships. They successfully covered a Swedish landing near Kronborg to threaten Copenhagen, which induced the Danes to renew the treaty of Altona. Once again, battlefleets had proved decisive in the narrow waters of the Sound and Kattegat. However, the war had unleashed another conflict in the east. Russia had invaded Swedish territory in the Gulf of Finland. Naval units and transports ferried Charles XII's army to the east, where he routed Peter's army at the Narva in November 1700. Swedish ships raided Archangel in 1701 and fought a series of small coastal actions and operations on Lake Ladoga until 1709.

The defeat of Charles XII at the Poltava in 1709 reopened the war in the north. During 1710, the Danish fleet controlled the western Baltic and assisted Russian operations on the Polish coast. Admiral Wachmeister finally got the Swedish fleet of 21 battleships out of Karlskrona in early October. He met 26 Danish warships in Køge Bay on 4 October. The Danish *Dannebroge* (94) caught fire early in the battle and later exploded. Two major Swedish warships, *Tre Kroner* (86) and *Princessa Ulrika* (80), ran aground by accident and had to be burned. The rest of the fleet parted, and Wachmeister had the good fortune to devastate a returning convoy of Danish transports on his way back to Karlskrona. However, in 1710 Russian sailing battleships appeared in the Baltic for the first time and Swedish naval forces had to be split.

Peter I's conquest of Livonia and Finland was achieved by his army, but with substantial water-borne support. The fall of Azov to the Turks in 1711 led to the concentration of almost all Peter's naval resources in the north. Oarand sail-propelled *skampavei*, capable of carrying 150 oarsmen and soldiers, raided along the Finnish coast during 1712–13. A fleet of these manoeuvrable vessels evaded a Swedish squadron becalmed off Hango Head in July 1714 and fell upon the Swedish oared flotilla, decisively defeating it in a savage boarding battle. Command of the shallow coastal waters of the Finnish archipelago now fell into Russian hands. Charles XII turned to privateers to disrupt Russian and Danish naval operations. He also hoped that this would worry British and Dutch interests, who would apply pressure to end the war. Instead Admiral Norris was sent with a squadron to convoy British merchants up to Reval in 1715, and in October

Hanover declared war on Sweden. As the royal house of Hanover now ruled in Britain, it was uncertain what line the British convoy force would take in 1716. Norris was commanded to observe a neutrality, as was a Dutch squadron sent to protect their vessels. The tensions between Norris and the Danes and Hanoverians, who wanted to use British naval force to attack the Swedes, illustrated the perceived importance of these vessels in the narrow waters of the Baltic. The tensions continued with the convoy squadrons in 1717 and 1718. In 1719, the Russians launched a major seaborne attack upon the Swedish coast, ravaging the country around Stockholm. Norris remained at the Sound to avoid conflict. The war ended in 1721, but similar situations arose in 1720, 1721, 1726 and 1727. No significant action was required. The great squadrons that Norris, Sir George Byng and Sir Charles Wager took out to the Baltic undoubtedly had an impact on the behaviour of the belligerents, but they were not well suited for action in the shallows against the galleys and small sailing ships of Sweden or Russia. On the other hand, the naval administrators had shown that they could support a large squadron in waters without the close proximity of their own ports.[14] When the war ended, Russia was the largest single naval power in the Baltic. Neither the Swedes nor the Danes had the resources to upset the balance, while the death of Peter I in 1725 led to the rapid collapse of the Russian fleet.[15] The most important factor from Britain's perspective was the belief that their naval power had been successfully applied in defence of British and Hanoverian interests. Although a British fleet did not appear in the Baltic again until the end of the century, there was no doubt that Britain now possessed the capability to secure its vital Baltic naval stores and commerce. The apparent efficacy of British sea power was also reinforced by events with Spain in the same period.

Anglo-Spanish disputes, 1718–39

The treaty of Utrecht had not satisfied Spain. Although the Spaniards had a Bourbon king who was broadly popular, they had lost their Italian and Netherlands possessions. This blow to his prestige irritated Philip V and his queen, Elizabeth Farnese. Austrian determination to limit Spanish ambitions in Italy was a threat to the peace that Britain, France and the United Provinces desperately wanted. In 1717 a fleet of 12 Spanish battleships, 17 frigates, seven galleys, two fireships and 276 transports carried 36,000 troops to Sardinia to overwhelm the Savoyard garrison. In an effort to deter further aggression, Sir George Byng was sent to the Mediterranean with a fleet of 20 line. Spain was not impressed, and Byng arrived too late to prevent a landing by Spanish troops on

Sicily. Byng met the Spanish fleet of 12 line, 16 smaller vessels and some other boats off Messina on 31 July (o.s.) 1718. The Spanish fleet was withdrawing, but Byng ordered a general chase. The result was the comprehensive destruction of Spain's new fleet. Thirteen of the larger ships were taken or burned. For the next 17 months Byng worked hard to assist the Savoyards and Austrians reduce Spanish resistance on the island. He was unable to prevent the Spaniards from reinforcing their forces from Sardinia, but eventually, in October 1719, Messina fell and the Spaniards were removed. In January 1719 Britain and France declared war and a French army invaded northern Spain. The rapid collapse of Spanish resistance forced Philip V to agree to terms. Although Britain found, as the French had done in the 1680s, that demonstrations of seapower did not deflect Spanish policy, the victory at Passaro and the contribution of the fleet were seen as major factors in the reduction of Spain.[16] Other operations seemed to confirm this. A small force was landed at Vigo without significant opposition or effect. In 1719 naval forces also seemed able to deter any effective intervention by large Spanish naval forces after a small Spanish expedition landed in Scotland to support a Jacobite rising.

Seven years later, in 1726, Spain and Austria drew together to renew the former's ambitions in Italy, to recover Gibraltar and to defend the commercial operations of the Austrian Ostend Company. The siege of Gibraltar lasted from February to June 1727, until disease reduced the Spanish attackers to impotence. The British decided to blockade the Spanish treasure fleet in the West Indies and Vice Admiral Francis Hosier was sent to carry out the task. Hosier and a large part of his squadron died of disease, but the blockade did break up the resistance of the Austrians and Spaniards to peace negotiations. The subsequent negotiations ended with a British squadron escorting Philip V's son to his new territories in Italy.

The success of the blockade and the intervention in the Mediterranean were seen in Britain as yet further examples of the power of naval force. In 1730, the apparent power of the Royal Navy in the Caribbean was seen to be so great that merchants wanted operations curbed to prevent the Spanish trade being destroyed.[17] Ever since Britain obtained the *asiento* in 1713 there had been increasing tension between British merchants and the Spanish *guarda costas* in West Indian waters.[18] Illegal trading by British vessels and illegal seizures by Spanish coastguards were founded in mutually incompatible positions on the Spanish claim to a monopoly of trade to Spanish America. As the years passed, Spain proved that she would not be intimidated by the threat of seapower and the depredations of the *guarda costas* continued. The devastation of Hosier's squadron by disease and the actions of the Royal Navy during the 1730s persuaded many that

more vigorous action might resolve this intractable Anglo-Spanish problem.[19] After 1737 there was growing pressure for naval action and every example possible was employed to demonstrate how effective it would be. The supposed effectiveness of naval operations during 1730–1 and the success of Sir John Norris' expedition to Lisbon in 1735 to deter a feared Spanish invasion was yet more evidence to them.[20]

Added to these apparent signs of naval power was a concurrent fear of the revival of Bourbon naval power. The defeat at Passaro had not deterred Spain from rebuilding its fleet. Between 1725 and 1740 the Spanish fleet rose from 27 to 54 battleships and cruisers. The former increased from 16 to 43. From 1726 until his death in 1736, this build-up was supervised by Jose Patino. Italy was the primary foreign policy objective, but Patino saw commerce, and particularly America, as the financial key to Spain's policy objectives.[21] The fleet continued to expand after Patino's death.

Perhaps more worrying to Britons, who had developed a dangerous disregard for Spain, was the revival of the French navy. The fleet rose from 45 battleships and cruisers in 1725 to 54 by 1740, with the battleships increasing from 39 to 47. The main expansion had occurred between 1724 and 1731 and after years of minimal funding, the fleet was still extremely weak. The peacetime budget for the fleet between 1682 and 1688 was 11–12 million livres. It only reached this figure once before 1734, in 1721. Otherwise the fleet had to make do with around 8 million livres, hardly enough to maintain investment in the infrastructure and expand the fleet.[22] The fleet's performance during the War of Polish Succession (1733–8) was not impressive. Operations off the Barbary Coast in 1731 and 1733–5, Genoa in 1732 and Danzig in 1734 were largely ineffective. These were actions by limited forces hardly calling for a sustained maritime effort; however, the very fact that the French fleet was operating at sea was enough to cause concern in Britain. French colonial commerce was expanding faster than Britain's and there was a strong fear that since 1730 Britain had been diplomatically outmanoeuvred by Cardinal Fleury and that France was once again establishing herself as the primary force in Europe.[23] To Britons, their trade was under direct attack from Spanish *guarda costas* and was being overtaken by French commerce. British interests in Europe were crumbling before French diplomatic successes. The French and Spanish navies were expanding and together there was the possibility that they would overtake the British navy in numbers before long. As the difficult negotiations with Spain broke down during the early part of 1739, Britain was going to war with explicitly maritime objectives–to take and hold some part of the Spanish American empire and to resolve the trading issues with Spain once and for all. It would be a naval war, and a large part of the political nation,

including many in the Cabinet, believed that naval power could decisively resolve the matter. However, in contrast to this optimistic vision of naval success was a feeling that it was a last chance. In the summer of 1738, the First Lord of the Admiralty, Sir Charles Wager, produced a paper showing the respective forces of France and Spain, and concluded that now was the time for war. The Admiral of the Fleet, Sir John Norris, told Parliament in February 1740, that Britain must now "conquer or be undone".[24]

The Anglo-Spanish War, 1739–44

When war broke out in October 1739, it was conceived by Britain as a formal naval war. The British navy was to use its numbers and capability to achieve decisive results at critical points within Spain's vulnerable and vital maritime empire. British squadrons were well placed to begin the campaign. The small squadron at Jamaica had already been ordered to undertake reprisals. The Mediterranean squadron was reinforced and ordered to prevent the Cartagena and Cadiz squadrons from uniting with the squadron at Ferrol. Vice Admiral Edward Vernon had been sent to the West Indies to do what damage he could to the Spaniards. Rear Admiral Chaloner Ogle had a small force off St Vincent to intercept Spanish shipping. An expedition to disrupt Spanish commerce in the Pacific was prepared under Commodore George Anson, and in December 1739 it was agreed to send a large expedition of 12,000 soldiers to the Caribbean to achieve the decisive conquests that would force Spain to make peace.[25]

The results were profoundly disappointing. The Cadiz and Ferrol squadrons evaded the British squadrons and sailed for the West Indies. The French Brest squadron of 18 line under the Marquis d'Antin and the Toulon squadron of 12 line under the Comte de La Roche-Alard also got out and sailed to the West Indies. The uncertainty about the intentions of these neutral French forces and their eventual escape increased the demands on the expeditionary force intended for the West Indies and imposed delay upon it. An escort of 25 line was required to take the expeditionary army to join Vernon's six warships, but by the time the expedition arrived at Jamaica, d'Antin had decided to return to Brest. Despite what appeared to be overwhelming superiority, the attempts upon Cartagena de las Indias, Guantanamo Bay on Cuba and Panama were all failures. Only the little island of Roatan in the Bay of Honduras was seized and held before the remnants of the expeditionary force sailed for home in October 1742.

In Europe, the death of the Emperor Charles VI in October 1740 had precipitated a war of succession, in which Prussia, Bavaria, France and Spain sought to extract

territory from Charles' daughter, Maria Theresa. Again the British fleet initially failed to live up to expectations. In October 1741, Rear Admiral Nicholas Haddock failed to prevent a joint Franco-Spanish fleet convoy a Spanish expeditionary army to Orbitello in Italy. For the next two years, the fleet was able to do very little as it adjusted its dispositions in response to the perceived threats in the Mediterranean and Channel. War in Flanders and Germany, where a Pragmatic Army, which included British forces, fought the French to maintain Austrian control of Flanders and preserve Hanover, preoccupied the British ministry. The ministry recognized that, unlike Spain, France had to be defeated in Europe, but still hoped that naval power could contribute to that victory. But the great expectations of the navy had come to nothing and in February 1744, a further disappointment occurred. Admiral Thomas Mathews' Mediterranean squadron met the Franco-Spanish fleet as it emerged from Toulon on 11/22 February. Mathews signalled to engage, but only his division in the centre and Vice Admiral Rowley in the van effectively engaged. Rear Admiral Richard Lestock's division failed to come up. The battle ended when the combined fleets pulled away from Mathews. The only loss was the Spanish *Poder* (60), which was badly crippled and exploded after being set on fire by her crew.[26] This new failure, particularly as it led to the outbreak of war with France, led to major political repercussions.

The war with France and Spain, 1744–8

The war had been full of unwelcome surprises. In April 1740, the Spanish *Princessa* (70) had put up an unexpected and spirited defence against three British 70s. Once captured she proved to be far larger and more powerful than equivalent British ships. Toulon demonstrated that the new French 74s were also larger, more seaworthy and threw a greater weight of metal than the British 80s.[27] The Admiralty was forced to experiment with different armament arrangements and in June 1745 Norris chaired a committee to reconsider the firepower and size of British warships. Also, early in 1744, for the first time since 1708, France appeared to be assembling an invasion force in the Channel ports and the Brest fleet was sailing up to cover a landing. Norris got out into the Channel to meet the French but a storm dispersed both fleets and severely damaged the transports.[28] The expedition was called off, but public confidence in British naval power had been seriously undermined. In this period of anxiety attention also focused on the failure of the officer corps. Professional and political opinion believed that the leadership of the fleet in battle had been wanting. A series of courts martial in the wake of Toulon

and the failure of Captain Mostyn to engage two French warships while on a cruise stimulated a spate of pamphlet literature and provided the public with the clear impression of a service in crisis.[29] This crisis coincided with the failure of the land campaign in Flanders. Defeat at Fontenoy in May and the outbreak of the Jacobite rebellion in July ended any hope of securing a good peace in the foreseeable future. During the rebellion, the navy performed vital duties in patrolling the Channel and supporting the advance of Cumberland's army up to Aberdeen and on to Culloden, but the overall impression was of the fleet failing to live up to the grand hopes of 1739.[30]

The disappointments of the previous years were not immediately relieved. Dutch naval assistance, proved to be late and less than needed. For years the Anglo-Dutch alliance had been weakening and the renewed French threat by land meant that few resources were available for the 20 warships required under the treaty.[31] The failure of an expeditionary force to burn Lorient in September 1746 seemed to confirm the feebleness of seapower, but by the end of the year the fundamental weakness of French naval power was becoming apparent. Before the outbreak of war with Britain, Maurepas had concentrated on supporting Spain in the Mediterranean and hindering British activities by feints and junctions with Spanish forces. After the outbreak of war, there were too few forces to send out regular independent expeditionary or cruising squadrons. French policy relied upon providing powerful escorts for commerce in European waters and local defence in other parts of the world. In October 1744 the Comte de Caylus was sent to Martinique with six men-of-war to provide the local defence for trade and colonies in the West Indies and to attack British interests. By early 1745, even this limited form of naval action was beyond French capability and Maurepas had to ask the merchants to pay for the convoys. During 1745 and 1746 the convoy system was relatively successful although it imposed major disruption on French commerce. Additional forces came out with convoys, but Caylus found increasing difficulty in providing cover, let alone offensive operations against the enemy as British naval forces cruised against the French Antilles and established a virtual blockade of Martinique by the end of 1747.[32]

In July 1745, a combined force of New England troops and a naval force from the West Indies under Commodore Peter Warren seized Louisbourg. It was an unexpected piece of good news and plans were laid to send an expeditionary force to take Québec during 1746. Maurepas organized a major counter-expedition to recover Louisbourg, under the Duc d'Anville. After decades of penury, Maurepas secured a major addition to his budget after the dismissal of the Comptroller-General Orry. It was, however, a unique opportunity–a last chance for the navy to prove itself of value to French policy. Ten line-of-battle ships, three frigates, two corvettes and transports for 3,500 troops had

to be found. The lack of fully developed maritime resources forced Maurepas to draw upon the resources of a number of ports along the west coast of France. This made the operation significantly more difficult than an equivalent British expedition, while French naval administrators had nothing like the experience of their British counterparts. Bad luck compounded the inexperience and scarcity of resources. The expedition finally departed in June 1746. Bad weather and poor victuals weakened the force. About 25 per cent of the land forces never reached Nova Scotia. By October d'Anville was dead and the expedition had achieved nothing. The survivors returned to France, devastated by disease.[33]

It was the last major effort of the French royal navy in this war. The ability of the French to mount powerful convoy escorts was increasingly limited. In March 1747, four battleships under La Jonquière were prepared to escort 30 transports to Québec. He was joined by Chevalier Grout de St Georges with two line and a convoy of East Indiamen from Lorient to go to India. St Georges had already been intercepted once and his convoy suffered severe damage.[34] La Jonquière left Brest 30 April (o.s), but on 3 May met a powerful squadron of 14 battleships under Admiral Lord Anson (First Battle of Finisterre). Despite a brave defence, all the French warships were captured. A further convoy, escorted by eight line of battle under l'Etanduere, was despatched in October 1747, but on 14 October fell into the path of Rear Admiral Edward Hawke's squadron of 14 battleships (Second Battle of Finisterre). Although the convoy escaped, six of the eight warships were overwhelmed.[35]

By the end of the year negotiations were underway. The war on land had broadly gone in favour of France and the Treaty of Aix-la-Chapelle was a return to the *status quo ante bellum*. In terms of the political expectations of 1739 seapower had not delivered the victory against Spain nor led to the invasion and subjugation of the kingdom by the Bourbon powers. The two battles of Finisterre and the capture of Louisbourg gave the partisans of maritime warfare something to celebrate. The war had been carried into the West Indies and successfully sustained until 1748. No great territorial gains had been made, but for the first time it had proved possible to maintain reasonably large squadrons at Port Royal and English Harbour. This was partly owing to the flexibility of the naval administrators who adapted their procedures to meet the growing needs of the naval forces in the region.[36] However, it would not have been possible without the expanding North American colonial economies that provided stores, manpower and victuals. In 1739 the ministry and public opinion had grossly overestimated the ability of a naval force to reach and operate in the Caribbean. However, the experiences of 1740–2 provided valuable learning. It had been assumed that support from the Northern Colonies would

be easily obtained. Despite the raising of a regiment of 3,000 men for the expedition, this was not to be the case. There were serious conflicts over pressing seamen, and misunderstandings between the British and the colonial societies.[37] Nevertheless, a *modus vivendi* was achieved and by 1745 British cruising squadrons were operating throughout the Caribbean, and ranging up the coast of North America damaging French commerce and making occasional attacks upon French and Spanish colonies. By 1748, the British army had experience of handling the expectations of American soldiers and officers. Unlike the previous wars, the British ministry went out of its way to conciliate the colonists concerning financial issues and there may have been some meeting of minds on the need for the press.[38]

Although most histories of Anglo-American relations have concentrated on the wars of 1739 to 1763 to explain the origins of the War of American Independence, it is also clear that these wars stimulated British societies on both sides of the Atlantic Ocean to provide an effective, mutually supporting, military framework. This was vitally important for the development of seapower and Britain's growing relative superiority. Technology had not changed to give the warship or the fleet greater operational range. Sustained operations by fleets were only possible with close supporting facilities. Significant projection of seapower ashore, either by creating economic dislocation or by direct military action was still only possible at a short distance from these supporting facilities. During the 1739–48 war, Britain developed its operational capability in the western hemisphere, which gave it local power far in excess of Spain and, particularly, France. Although France with its larger navy was considered by Britain to pose the greatest maritime threat, because of the proximity of its fleet to England, the clashes with French traders and their Indian allies from Canada and the vitality of French commerce, Spain was stronger in the Americas. A large part of the coastal regions was sparsely populated, but Spanish colonial society was well developed, with a populated hinterland. Their cities were increasingly well defended and garrisoned by regular troops. They had created supporting facilities for naval forces and a population from which to fashion defence and attack. The Spanish authorities in America lacked the funds to create a formidable local naval force and metropolitan Spain lacked the royal ships to send out to America, but the facilities were, nevertheless, there to defend and support such fleets had they been sent.[39] France was less well provided for. The population was low compared to the expanding English population in North America. They had few naval facilities, skilled artisans or seafaring population capable of sustaining a large fleet over long periods. French diplomatic power in Europe and the size of their fleet, gave a distorted vision of her seapower. Numbers of warships cannot be equated with seapower. The

ships had to be able to project that power over water. Even in European waters, the French ability to put an effective force to sea was strictly limited as wear and tear and the natural attrition to stores, manpower and victuals could not be replaced at an adequate pace. The more pressure the British applied to French naval forces, the faster this attrition reduced her naval capability. In American waters France was in a worse position. Although Britain had not yet developed an ability to sustain large-scale operations in America or the Caribbean, she could maintain a consistent force there. Large squadrons could be provisioned and repaired in Port Royal, Jamaica and smaller forces in English Harbour, Boston and New York. They were capable of harrying French commerce and coastal regions. France did not have this capability. French naval forces were caught in a trap. The stronger British defences and naval forces in the Caribbean became, the larger her own expeditionary forces had to be, but the larger they were, the less able they were to support them. After d'Antin's expedition of 1740–1, French restricted naval operations to escorting commerce. The same was true in North America, where British naval strength was less concentrated. D'Anville had no supporting facilities to reorganize, recruit and refresh his forces.

If the British naval infrastructure provided them with a substantial advantage in the Americas, a similar advantage was becoming evident in the East Indies. The European presence on the Indian subcontinent was limited to merchants, usually in the form of the great monopoly trading companies, maintaining trading posts or "factories" with the permission of the local political powers. The Portuguese were well established at Goa. The English East India Company had its principal factories at Bombay on the Malabar Coast, Madras on the Coromandel Coast and Calcutta in Bengal. The French Compagnie des Indes had its major posts at Pondicherry, south of Madras, Chandernagore in Bengal and Mahé on the Malabar Coast. The main Dutch interest was on Java, but it held the important harbour of Trincomalee on Ceylon.

The great distance to the Indies made refreshment points important. The Portuguese had established themselves at Mozambique in East Africa, the Dutch held the Cape of Good Hope, the English had the island of St Helena and, from 1715, the French had Mauritius. All nations used the uninhabited parts of Madagascar to wood and water when necessary.

The companies' ships were usually armed to protect themselves against pirates and local naval forces and the need to support these vessels had stimulated the development of some important dockyard facilities, but they were insufficient for large battleships needing repair after a major battle. Bombay was probably the only port on the subcontinent that could cope with this situation, particularly after the 1730s when it

began to develop as a major shipbuilding and repair centre. Trincomalee was a secure harbour with facilities, but elsewhere, particularly on the Coromandel Coast, there was little shelter and fewer facilities for major warships. The northeast monsoon season (October to April) was a particularly dangerous time on the Coromandel Coast for large ships, and at least until January it was wise to shelter at Trincomalee or leave the coast for Bombay or Mauritius.

The dangers, the distances, the quasi-autonomous authority of the trading companies and the demand for warships elsewhere made European powers wary of committing large warships to East Indian waters. Britain and France toyed with the idea of agreeing a neutrality during wartime. This was similar to their reaction to the prospect of war in North America in 1686, and just as in the North American case, the proposal died when the powers recognized they had the capacity, and therefore the necessity, to send regular naval and land forces to the subcontinent. A small British naval force was sent to India in 1744. Its job was to cripple the French East Indies trade. The French responded in 1745, under Bertrand de Mahé de Le Boudonnais, but had to rely on converted East Indiamen which were less well armed and less powerfully built than the British warships. They also found poor facilities on Mauritius which forced them to spend a great deal of time refitting and provisioning at Madagasar. When Le Boudonnais finally arrived off Ceylon, he found the British squadron under Commodore Edward Peyton in poor repair. The battle off Negapatam on 25 June 1746 was indecisive. Le Boudonnais managed to get into Pondicherry and for the next year, the presence of a small French squadron neutralized the British seapower. On 3 September Le Boudonnais' squadron landed troops near Madras, which surrendered on 10 September. The arrival of Rear Admiral Edward Boscawen to take command in the East Indies in July 1748 with six warships of 50 guns or more created a squadron often warships and a large margin of superiority over the six French warships. However, superiority at sea did not decisively shift the balance on land. The British attack on Pondicherry in August was a failure. Boscawen's ships could not make an effective attack upon the town and the troops were too few for an effective siege.[40]

Neither naval nor land forces had proved decisive in the complex political conditions on the Indian subcontinent and ideas for an Anglo-French neutrality in a future war continued to circulate during the 1750s. Aggressive diplomatic manoeuvring continued among the Europeans and Indian powers between 1749 and 1756, but the situation shifted decisively in Britain's favour during the Seven Years' War, when British attacks, supported by naval forces, caused the collapse of the French settlements at Chandernagore and Pondicherry and the extension of East India Company control into the hinterland

of Bengal. Henceforth, Britain was a significant regional land power and although Bombay remained the principal dockyard, which was a serious inconvenience for the use of battleships, Britain had become a regional seapower. In 1748 there were slight indications that Britain was developing a decisive reach and sustainability of seapower based upon a local naval infrastructure. By 1763 that local infrastructure provided an unmistakable advantage.

By 1748, therefore, despite intense political and professional anxiety at the apparent lack of results, Britain had consolidated a significant superiority of seapower relative to the rest of the world.[41] Britain could project seapower further, longer and with greater effect than any other power. Little had changed in the formal organization and technology of the Royal Navy. The main structures of the navy, its manning policies, victualling, storing, building and maintenance systems experienced severe strain during 1739–41, but gradually adapted to meet the demands placed upon them without major alteration.[42] Nonetheless, significant changes did take place. Over the course of the war, the operations of the Western Squadron became more effective. From 1746, larger numbers of warships were concentrated at Plymouth, to provide a constant cruising squadron in the Western Approaches. The employment of this enlarged squadron was left more to the discretion of the commander than in previous years, and its cruising under Anson, led to the victory at the First Battle of Finisterre in May 1747. As the facilities and manpower expanded at Plymouth to meet the constant demands of ships preparing for sea, the employment of this squadron became a major opportunity for the British to keep a large force at sea to the west of France. By the time the war ended, the facilities, experience and opportunities had been sufficiently developed, but in the 1750s it was to lead to major advantages.[43] From 1746, the ability of British warships to range largely unhindered along the French coasts also meant that soundings were taken in more detail than ever before. During an abortive attack on Lorient in September 1746, British warships sounded the coast down to Quiberon Bay. Although maps were kept at the Tower of London by the Board of Ordnance, it is not yet known precisely how soundings and similar intelligence was disseminated throughout the fleet. More work is needed, but, particularly in the light of Hawke's great victory at Quiberon Bay in November 1759, it is important to establish what impact, if any, this intelligence had on later events.

Other changes are also important. Admiral George Anson's dominating role at the Admiralty and while at sea in command of the Western Squadron during 1746–7 was to strengthen the navy. His emphasis on discipline and training and his ability to work with his civilian colleagues at the Admiralty, particularly the Duke of Bedford and the

Earl of Sandwich, helped to focus attention on the practicalities of conducting a maritime war.[44]

All these things improved the capability of the state's navy, but it happened in conjunction with privateering. Overall captures by privateers were much smaller than in previous wars. In both British and French ports there was a marked decline in privateering activity. The reasons for this decline have not received the attention of the expansion during the period up to 1714, but economic changes in the French Channel ports, particularly Dunkirk, and the Channel Islands may have been more significant than any state naval activity. The expansion of the colonial economies meant that privateering shifted its focus to the Americas, where French vessels from Martinique, Spanish ships from Havana and Florida and British North American privateers created greater damage on the other side of the Atlantic than ever before. French and Spanish privateers took a large number of prizes and created a political storm in North America, but it was British and American privateers that gathered the lion's share, taking twice as many vessels as her enemies (see Table 7.1). Although the reports of capture may not indicate a condemned prize, there can be little doubt that American privateers were now an important element of British seapower.[45]

The impact of these seizures upon the various states is unclear, but it appears far less than had been the case up to 1714. They represented a smaller percentage of commercial shipping and the overall economic impact of attacks may also have been different. Although the most attractive targets were still the valuable East and West Indies convoys, the attacks did not fall particularly heavily upon them, but on ships in a more diversified and sophisticated maritime market. Buttressed by insurance and working in a market which discounted losses to privateers against the advantages of high prices induced by scarcity, merchants lived with the depredations.[46] The political acceptance of these losses in Britain was also reflected in the relative lack of uproar in parliament. British naval

Table 7.1 Nationality of prizes reported as taken during the war of 1739–48 by the British colonial press

Britain	798
France	892
Spain	423
Enemies of Britain	332
Total	2,504

Source: C. E. Swanson, *Predators and prizes*, 56.

resources were directed to protect trade by convoys and cruising squadrons, while France adopted powerful convoy escorts to minimize the damage to their most valuable trades.

This was a critical point in the evolution of modern seapower that is in need of further investigation. By 1713, France had developed an approach to naval war that had emphasized the complementary roles of the royal warships and privateers which had been reasonably successful up to that point. Britain was far better placed to develop its royal navy. Her state naval forces had obtained significant gains for her in the Treaty of Utrecht, but she still relied upon the harassing actions of her privateers. The expansion of the maritime economy focused attention on its importance, vulnerability to naval action and privateering action. By 1748 this had all been severely challenged. Britain's belief in the efficacy of her naval forces had been undermined. Neither France nor Spain had been humbled by naval power. On the other hand, the maritime economies had not been seriously damaged by privateers or naval action. Neither fleets nor privateers had had a decisive impact on their enemies. The reasons why privateering failed to have a major impact and why it did not expand in line with the expanded resources still require detailed investigation. What is clear is that during the course of this war, the British navy strengthened its operational capability both relative to its enemies and in absolute terms.[47] It was now capable of sustained operations on both sides of the Atlantic, the Western Mediterranean and, to a lesser degree, the Indian Ocean. The existence of a French fleet in Atlantic waters meant that it was still not large enough to sustain operations everywhere and other resources, particularly in America, were needed to be fully effective. However, in 1749, there was no clear evidence, despite all the energies and faith that had been placed in privateers or state navies, that seapower could have a decisive impact on any but the most exposed principalities, such as Denmark and Naples. The Seven Years War was soon to prove that seapower could be converted into a powerful, if ephemeral, diplomatic weapon.

Chapter Eight

The Seven Years War and global seapower (1756-63)

1748-55: recovery and development

The War of Austrian Succession had demonstrated that the maritime world had developed since 1714. France had not been seriously undermined by British naval action, but her losses were, nevertheless, substantial. The Newfoundland fishery had been devastated. Possibly as much as half her merchant fleet and commerce had been lost during the war, and 23 battleships and 18 frigates had been lost. She was reduced to only 30 battleships in a condition of sea service.[1] Her privateers, which had been effective up to 1714, did not take to the seas in the numbers needed to have a significant impact on the growing British merchant marine.

On the other hand, the superiority of Bourbon ships was not doubted and caused considerable disputes between the British Admiralty and its subordinate board, the Navy Board, which had day-to-day responsibility for the building and maintenance of British warships. The capture of French frigates *Medée* (28), *Panthère* (20) and the privateer *Tigre* showed the British how much they had to learn from the designs of shipwrights like Blaise Ollivier of Brest, who designed the *Medée* and who had carried out an extensive investigation into English and Dutch building in 1737.[2] Tests carried out on the captured French ship *Invincible* (74) in 1747 suggested that French ships were faster, larger and more seaworthy than equivalent British ships. In firepower, the French "74" was also a match for a British 90-gun ship.

However, in squadron actions using contemporary line-of-battle tactics the French were at a distinct disadvantage. They were always inferior in numbers or united with Spanish allies with whom command and control was difficult. A standing fight in line under these circumstances was unwise and the actions were generally running fights

aimed at preventing the British from doubling the smaller French force. They led to messy actions in which French ships were isolated and lost while they had little hope of inflicting similar damage on British ships. The officers and seamen performed bravely, but these were unequal battles. The need to fight defensive actions undermined morale. The lack of experience at sea and in fleet action meant their gunnery was inferior to the British, whose rate of fire seems to have been significantly faster. With a weaker starting base, attrition in action was heavier on the French and they had fewer and less efficient supporting facilities. The expensive royal navy was in danger of being ground away in fleet actions. The French could not afford to seek out the British for fleet actions but, instead, concentrated on small squadrons for specific tasks, such as expeditionary forces or convoy escorts. The British fleet was stretched and could not be strong at all points, nor was it consistently effective inshore along the French coast in preventing the French squadrons from sailing when the opportunity arose.

There had been some failures during 1746–8, but enough successes, particularly the convoy covering system, to suggest that these tactics might be adequate as an effective opposition to the powerful British fleet. France could not neglect the sea. Her maritime commerce had expanded dramatically in the first half of the century and nothing had been done to damage the fundamental economic infrastructure of this commerce during the war. Merchant ships were replaced and trade resumed. America and the West Indies promised continued expansion. It had to be defended and exploited. Louis XV decided to expand his fleet. The fast, powerful "74s" and "64s" were to form the basis of a new fleet of 60 battleships. New fast, light frigates were also ordered to bring numbers up to 30. By 1756, the building programme had expanded the line of battleships to 54. The officer corps continued to develop. The Académie de la Marine opened in 1752 at Brest, which began the expansion of the scientific study of naval and maritime matters. Far more than the British Naval Academy (1729), this body provided the focus for a genuine intellectual development in the understanding of all maritime affairs.[3] The galley fleet, which consumed part of the naval budget, was finally abolished in 1748. Its role against Spanish coasts had long since become irrelevant. Since the 1680s, operations against the Barbary corsairs had focused increasingly upon putting pressure on the ports rather than fighting the galleys. Mixed forces of small ships and bomb vessels had achieved some, usually temporary, results against the Barbary states during the 1720s and 1730s. The galleys were no longer needed. Ironically, it was just at this point that the Swedes sent experts to the Mediterranean to seek advice on galley building as their need for such vessels against the Russians in the Finnish archipelagos was increasing.[4]

The manning of the fleet remained a major problem. Colbert's *classes,* the threefold division of the seafaring population into those free to undertake commercial voyages,

those held in port for defence and contingency and those to serve on the royal warships, had proved impracticable. During 1746–8, when the number of French warships at sea was always limited, it was found that the crown needed over 20,000 seamen, or half the total manpower available. From 1749 the system operated more flexibly, managed by the commissaries according to the needs of the crown. This flexibility and the news that the total number of seamen had risen to 52,460 gave some hope that the fleet could be manned, but the margin remained very narrow.[5]

The French fleet had greatly improved by 1756. However, it was never seen as a fundamental element in French policy. It was not thought of as the major defensive bulwark of French possessions, either in metropolitan France or its colonies. Nor was it the primary offensive force. The expanding population of New England was more of a threat to Canada than the British navy. Resources had to be shared with land defences of the colonies. The Minister of the Marine and Colonies after Maurepas' dismissal in 1749, the Comte de Jouy, concentrated on the long-term continental position of Canada as much as the navy.[6] Everything being equal, the French fleet had shown that it could get supplies to and from the colonies. The fleet had to be large and powerful enough to carry out these forays and force the convoys back and forth through the choke points of the Western Approaches or the Straits of Gibraltar at favourable moments. It did not need to seek out the British for battle. Even if the French had desired to wrest long-term control of the Channel from the British, it is doubtful if it was ever within their grasp. The tremendous effort of building 53 battleships and 37 frigates between 1748 and 1758, as well as maintaining this new fleet, had almost exhausted supplies of cannons, iron and other naval stores. When war broke out again in 1756, the French fleet looked impressive to the British, but it still rested upon feeble support and maintenance facilities. The reason why the French navy was effective as late as 1759 was that, unlike 1740–2, it did not exhaust its limited resources in a large, single campaign at the beginning of the war, but kept to the strategy of fast small squadrons. The penalties were to become apparent later.

Spain had also learned some lessons about seapower. She could be pleased with the quality of her ships. Powerful and durable, they had stood up individually to British vessels, but like France they had succumbed to numbers and aggressive British attacks. Seventeen battleships, or half her pre-war naval tonnage, had been lost.[7] Spain also had to rebuild, confident in the basic quality of their ships. Although British ship design lagged behind its rivals, the Spanish Secretary of the Marine, the Marques de Ensenada, recognized that Britain possessed some of the most skilled shipwrights in the world and he managed to get 50 of them to come to Spain to undertake the expansion of the fleet. By 1756 38 new battleships had been launched which proved even more durable than

their predecessors.[8] In the first half of the century Spain had established a reasonably effective naval shipyard administration, but still lacked good, secure sources of manpower and naval stores. With the death of Philip V in 1746, Italy ceased to play such a significant part in Spanish foreign policy and the Americas became the focus of Spanish attention. Alone, Spain could not hope to defeat Britain at sea by a short intense campaign in European waters, but, like France, she could send small squadrons to the Americas to cause Britain substantial damage. A Spanish squadron could remain effective in American waters far longer than a French one because good naval yards and stores were in place. For this reason, the Spanish naval threat to the West Indies was potentially more dangerous than that posed by France.

For Britain, the war of 1739–48 had caused profound disappointment. The discipline and professionalism of the officer corps and the naval administrators had been questioned throughout the war. Had things remained unchanged, there may have been good grounds for the Bourbons to assume that their growing numbers of large, fast battleships and well-armed frigates would be enough to sustain operations in colonial waters. However, significant modifications were being undertaken, under the direction of Admiral Lord George Anson, the First Lord of the Admiralty. The precise role Anson played in the changes is very difficult to establish, given the absence of personal papers that could have shed light upon his thinking and influence. However, there is a lot of indirect evidence to suggest that his influence was crucial. His personal achievements in the war, his patronage of officers who had performed well with him, his distaste for officers that did not perform adequately, his training and discipline at sea and his work with Sandwich on the Admiralty Board indicate that he established for himself a central role in the decision-making of the navy. During 1755 Anson was instrumental in the establishment of a new Navy Board that would support reform. Thomas Slade and William Bately were appointed joint Surveyors of the Navy. Slade's innovative approach to design and his constant desire to improve had a major impact on the fleet. His work on large three-deckers, the 74-gun battleship and the new, large single-deck 32-gun frigate established new classes of warship for the navy. By 1757, the *Bellona* class of "74s" had perfected a new, large, two-deck battleship that matched the French for durability and seaworthiness. By 1759, 14 "74s" were in service and more were laid down until 1762, to provide the backbone of the British battleline in the last half of the century. His "90s", *Sandwich*, *London* and *Barfleur* and his famous "100", the *Victory*, combined improved seakeeping with more powerful broadsides and began the re-emergence of the three-decker as the most powerful battleship in Europe's navies. Slade's *Southampton* and *Alarm* classes of 32-gun frigate, carrying 12lb cannons, rather than 9lb guns, were based upon French models, but also showed that he was aware that French policy had shifted towards larger,

more heavily gunned frigates which Britain had to match. In 1757 substantial building began, so that by 1759 Britain could put to sea ships that were individually as good as her enemies'.[9] Furthermore, although Britain had laid up most of her battleships during the peace, she had maintained her small ships and cruisers. These smaller vessels were to play an important role in the coming conflict.

By 1754, the British ministry, including Anson, was seriously concerned by French naval expansion and activity in Canada. Spain showed no sign of joining France which meant that, unlike 1739, Britain could rely upon a substantial numerical advantage. British battleships outnumbered the French by 2 to 1, cruisers by 2.4 to 1 and smaller ships by 2.5 to 1.[10] However, mobilizing these ships would take time and the British had no distinct advantage in speed at the beginning of a war. British ships were scattered across the seas from the East Indies to the Mediterranean and the West Indies. There was no certainty that they would be able to stop the powerful little squadrons sailing from France at will.

1756–8: the effects of attrition

Almost as soon as conflict broke out, France began to suffer from the effects of attrition. In April 1755, Vice Admiral Dubois de la Motte took a convoy out to Québec and Louisbourg. With a covering force for the first stage of the voyage, the French had put to sea 19 line. Vice Admiral Edward Boscawen was ordered to America with 11 line, followed by Rear Admiral Francis Holburne with six more when the ministry heard of the force that had sailed with de la Motte. De la Motte got to Canada, but four straggling battleships were intercepted and three were captured. The rest of the convoy for Louisbourg arrived safely and managed to rejoin de la Motte for a safe voyage back to France. Another small expedition under Comte du Guay escorted a convoy towards the West Indies and Vice Admiral Sir Edward Hawke, with the revived Western Squadron, was ordered to Biscay to intercept him, but du Guay also returned successfully in September.[11]

Throughout 1755 British naval forces in the West Indies and the East Indies recommenced the pressure they had applied to French posts between 1744 and 1748. Apart from Boscawen's expedition to North America, little was done to reinforce forces overseas as Anson wanted to hold the fleet in home waters while there was a threat of invasion. This powerful and persistent fear of invasion which haunted British naval thinking led to a major disaster. With British forces concentrated in the Channel, a

French expeditionary army was sent under cover of the Toulon squadron to Minorca, which landed in April 1756. Rumours of an impending landing had circulated in London since October, but it was only in March that the ministry felt safe enough to send a force of ten battleships under Vice Admiral John Byng. When Byng reached Gibraltar on 2 May, he allowed himself to be convinced that he could not save Minorca and was tactless enough to despatch his views on the inadequacy of the facilities at Gibraltar to the ministry. Nevertheless, he sailed for Minorca, and on 20 May met La Galisonière's force of ten line off the island. Unlike the previous war, this battle was between almost equal forces of battleships from the two navies. The action began with the French to leeward, stretching away to try to gain the windward position. Byng approached the French on a convergent course from windward. The two vans were approximately opposite when Byng gave the signal to engage, but the lines were not parallel. The British van was closer to the enemy than the two rears. The vans engaged first, but raking fire badly damaged the *Intrepid* (64), sixth in line, which disordered the approach of the following ships. Byng, who recognized the whole fleet could not become engaged did not pursue the French, nor did La Galisonière try to exploit his advantage to destroy the isolated British van. Byng retired to Gibraltar, believing that he had done all he could, but the ministry was furious. In March 1757, Byng was found guilty of failing to do his utmost to destroy the enemy, which, under the new articles of war, carried a mandatory death sentence. The volatile mix of public outrage at another naval disappointment and the loss of Minorca, the political instability of the ministry and the apparent defeatism Byng expressed at Gibraltar, together with other disappointments in the European war which had broken out by then, made clemency impossible and Byng was shot on the quarter-deck of the *Monarch* on 14 March 1757.[12]

French naval operations up to the end of 1757 had been fairly limited but successful. The convoys had got in and out of French ports. In January 1756 d'Aubigney took two ships and two frigates to the West Indies where he cruised till October. In February de Beauffremont took five line and two frigates to the West Indies and on to Louisbourg for the return voyage. In the same month Perier de Salvert sailed from Brest for St Domingue with four ships and two frigates. In November two ships and two frigates under Monsieur de Kersaint departed to ravage the west coast of Africa and went on to St Domingue to escort the West Indies trade home. De la Motte again left Brest in May 1757 and reached Louisbourg to unite with de Beauffremont and create a naval force that outnumbered that of Vice Admiral Holbourne. Another force of four line had successfully left Toulon for Louisbourg under Monsieur de Revest. It seemed that the

French strategy was working. However, the strain of even this limited strategy was beginning to tell.

The demands for seamen to man La Galisonière's expedition had been very heavy for the Mediterranean provinces. The Toulon squadron always demanded proportionately more of the available manpower than the Atlantic squadrons. Delays in the payment of wages and the possibility of slipping across to neutral Genoa made employment on the royal ships unattractive. When La Galisonière returned to Toulon there was a mass desertion from the fleet and when the time arrived to man de Revest's ships, sailors had to be brought over from the Ponant. When this force returned in 1758, they had been decimated by disease, which further discouraged the seamen, so that when the Comte de la Clue was organizing his expedition from Toulon in 1758 he could not get men. Desertion was less practicable on the Atlantic coast, but the pressure was also beginning to tell here as well. Merchants needed about 20,000 seamen a year out of a pool of possibly 38,000 in the 1750s. Wartime disruption to trade significantly reduced this number, but by mid-1756, the commissaries of the classes estimated that they could call on 12,600 seamen. This number rapidly dwindled, falling to 6,800 by the end of the year. Epidemics at Brest drove the seamen away, and mortality on the ships, rising to an exceptional average of 25 per cent in 1757, reduced the pool of seamen further. However, the most significant drain was caused by the British seizure of ships at sea.

The British approach to attacking commerce hardened quickly during the war. More ships than ever before received letters of marque. Perhaps 1,700 ships from Britain and North America carried commissions as privateers as opposed to about 710 French ships.[13] The ships were bigger and cruised further. Small warships also cruised after enemy shipping. The British were determined to make this form of warfare effective and were prepared to risk serious diplomatic trouble with neutrals and allies. It was well known that some French commerce had been diverted to neutral shippers which led to attacks upon neutral shipping, and in 1756 the British "Rule of War" declared that neutral merchantmen trading to ports that would be closed to them in time of peace to be good prizes, which extended the scope of legal prizes open to privateers but was clearly in contravention of the old principal of "free ships free goods". Protests from Prussia, the United Provinces, Denmark and Sweden came to nothing. Britain used the potential threat of her naval power and exploited the divisions between the neutrals and their confusion in the face of the problem.[14] By the end of 1758 French commerce had been driven off the seas unless it was under protection of a convoy. The productivity of privateers fell dramatically and the diplomatic problems began to subside. While the net

for prizes was cast wider, the privateers had to compete with Royal Navy warships for prizes. From the beginning of the war, the British navy was large enough to cruise after trade. During the war over 60 per cent of the merchantmen captured and 90 per cent of the warships or privateers were taken by Royal Navy vessels. Once French Atlantic trade disappeared, the privateers began to look to the Mediterranean, but fewer licences were taken and the specialist privateering voyage began to decline.[15] As the prizes increased, so did the populations of the prisons in England. Despite the increasing overcrowding and threat of riot and epidemic, the British ended the system of exchanges of prisoners with the French. Over 60,000 French prisoners were in British gaols by 1763, perhaps 70 per cent of them skilled seamen. About 12 per cent died of disease in the overcrowded and insanitary conditions. The drain on skilled French manpower began to bite by the end of 1756. Over 5,500 trained seamen were in British prisons by the end of the year and the crisis deepened during 1757. By the end of 1758 the number had risen to 15,000. The disruption to trade also had an impact on French domestic credit. Difficulties over paying the seamen increased and by mid-1758 any hope of a major naval campaign had disappeared for that year. By great efforts, money and men were scraped together for 1759, but the most powerful ships that were to be put to sea on the most ambitious projects of the war were undermanned and made up by landsmen.[16]

While French resources were withering away, British forces were growing. Britain had a persistent manpower problem and came close to crisis early in 1759 when only 75,000 out of 82,000 seamen required for service could be found, but this was at a point when French manpower reserves had also been exhausted. The numbers mustered represented a substantial growth for a navy that had started with 10,000 in 1752, had recruited 30,000 without difficulty in 1755 and stumbled on to expand to nearly 50,000 in 1756. Despite the strain and anxieties, traditional methods like the press, bounties and the encouragement of foreign seamen provided enough men to man a navy that expanded to over 277 ships in 1759.[17]

One of the reasons why the fleet was effectively manned despite unprecedented demands was the unspectacular but significant administrative changes that improved the efficiency of the service. The Admiralty was well aware that the demands that were being placed upon the fleet were far greater than in previous wars. Ships were being sent further and in greater numbers to stay at sea longer than ever before. This posed major health and maintenance problems which had to be solved by the Navy and Victualling Boards. New buildings and facilities were set up to speed up maintenance and supply. When the Western Squadron fixed upon Torbay as its sheltering point rather than returning to the confined waters of Plymouth, new supply facilities were established for

food and water. Where weaknesses had been discovered, such as in the quality of the cheese and beer provided to ships, experiments with alternatives were undertaken. This was not new, but the need was more pressing given the size of the fleet. There was a reduction in the number of deserters as a result of better control and possibly a more attractive payment system introduced in 1758. Improved dietary and sanitary procedures reduced the numbers of sick on the long patrols off the western coasts of France.[18] The physical infrastructure of maritime Britain and the administrative processes of the Royal Navy were, together, adequate to meet demands.

Other resources were also in place. William Pitt's great contribution to the Seven Years War was not an innovative strategy or administrative genius, but a political acumen that enabled him to convince parliament that the war could be won. This confidence secured the finance bills and therefore the credit that underpinned the expansion of the fleet and the army.[19] The army also played an important part in the victory. From paying for an army of 47,488 in 1756, Britain paid for 91,446 British troops, 20,000 American levies and 19,019 Hessian troops in 1759. Over 34,000 regular troops were in North America by 1759–an army larger than that which had been in Flanders between 1742 and 1745.[20] Traditionally, the weakness of French seapower is seen as the critical cause of the failure to match the British build-up in America, but by 1758 there were serious problems facing the French army. Lack of money and recruits made it difficult to sustain the campaign in Germany.[21]

Here is another critical point for the argument about seapower. By the end of 1758, French commerce was badly damaged by the British navy and privateers. British credit had been secured by the political confidence shown in Pitt and the financial stability of the City of London based upon the receipts of international trade which were protected by naval power from the diminished French threat. British credit not only paid for an expanding navy and army, but also subsidized Prussian resistance to the Austro-French attacks. Anglo-Prussian forces secured Emden as a North Sea base for continuous British support for Prussia. Britain had secured substantial local seapower on both sides of the Atlantic. Bases in Britain, the European littoral, the West Indies and, to a lesser degree, North America and India gave British naval units and privateers secure points from which to operate against the enemy in local chokepoints. Furthermore, Britain began to exploit the mobility that this local support and infrastructure gave her to project naval and military power along enemy coasts and ashore. Raids upon the French coast to divert French forces from Germany had not been successful. The army did not land at Rochefort in 1757, it did little damage at St Malo in 1758 and met with disaster at St Cast Bay in the same year.[22] However, in May 1758 Senegal was captured, and in December

the island of Gorée off the coast of Africa fell to British forces. In July Louisbourg fell to an attack from the sea and at the end of 1758 an expeditionary force was on its way from Britain to the West Indies to attack Martinique. This attack failed, but in May 1759 Guadeloupe was captured.[23] Why did British amphibious assaults succeed between 1758 and 1762, when previous experience had not been entirely encouraging?

Assault landings in the face of an alerted or entrenched enemy were highly dangerous and rare. The fame of Major-General James Wolfe, whose successful landing at Gabarus Bay near Louisbourg in 1758, unsuccessful landing at the Beauport Lines, east of Québec in 1759 and death in battle on the Plains of Abraham west of that town in September of that year, has done much to define the popular image of amphibious operations in the eighteenth century. Seaborne forces had the mobility to avoid an entrenched or prepared enemy and usually did. The act of landing, which dominates twentieth-century amphibious operations, was less significant in the overall operation in earlier centuries, but there is a case to suggest that the sheer number of amphibious attacks made after 1757 enabled the administrators and naval and army commanders to improve their practices.[24] There is, however, a danger of overemphasizing this aspect of operations. Effective bombardment from the sea and the organized landing of troops had been recognized as essential elements for success long before the Seven Years War. Landings during the 1740s had been well prepared and executed. The main difference was evident after the landing and lay in the ability of the expeditionary armies to sustain themselves ashore. In the Americas they were usually larger in relation to the defensive forces that faced them. They were more effectively supported by the labour of seamen ashore and by the cannons from their ships. Reinforcements and resupply from the colonial societies or regulars stationed in the colonies were more frequent. The despatch of regulars around the globe was vital to the success of these operations, but in both America and India they were supported by growing numbers of locally raised forces. The material balance had turned significantly against Britain's enemies in the wider world. As these resources began to tell, it was less possible for French and Spanish garrisons to shelter behind fortifications, expecting that disease or hunger would force the British to retire. An important aspect of British success lay in the integrated performance of its battlefleet, cruisers, privateers and merchant marine at home and in the colonies. Between 1759 and 1763, British operations were seldom threatened by significant enemy naval units. Enemy privateers and cruising forces were also contained. The lines of communications for transports and victuallers remained open. The crews and guns of the battleships were available for land service. Even in European waters, by 1761, an amphibious British army could operate in security against Belle Île. It was an unusual period, not replicated

again until 1793, but it inspired a tradition or expectation of success that underpinned British military thinking from that time on. The importance of the battlefleet in this situation was recognized by historians in the early twentieth century, but they tended to underplay the contribution of others–the regulars, the colonial levies, the colonial and British maritime economies.[25]

At the furthest reaches of European naval power in the East Indies, British naval forces co-operated with the East India Company forces. They had important local support which the French could not rely upon, but the British fleet possessed no decisive numerical or positional advantage. Whereas one of the main French naval objectives was to move forces or convoys through British dominated chokepoints at either end of the transatlantic passage, their objective in India was the same as the British–to support their factories and Indian allies. Naval forces in Indian waters throughout 1756–8 were fairly evenly balanced at about four or five line each. Vice Admiral Charles Watson retook Calcutta in January 1757 and Chandernagore in March, but the French were able to hold onto their position along the Coromandel Coast and even besieged Madras from December to February 1759. Watson's successor, Vice Admiral Thomas Pocock, and Monsieur d'Ache both found that support in the main theatre of operations around Madras–Pondicherry was very difficult and fell back on better supply bases when necessary–the French to Mauritius and the British to Bombay. During 1759 the British received a small reinforcement of four line which finally tipped the balance against d'Ache. In Europe, America and India, it seemed as though in 1759 seapower was about to become, for the first time, a decisive factor in the fate of European states.

1759–63: the collapse of French seapower

By the end of 1758 it was becoming clear that Britain was beginning to exert decisive pressure in the Americas. This was not simply due to naval power, but to the mobilization of American resources against Canada to support large-scale land operations, which, even if France had maintained its parity at sea with Britain, could not be matched from Canada. French plans in Germany had also been frustrated. France was unable to conquer Hanover which might have given them a bargaining counter for colonial losses. French naval policy of fast squadrons had proved adequate for defensive purposes, but had not threatened British interests substantially. Getting in and out successfully was no longer enough to disrupt British naval plans. In November 1758, the Comte de Bompar had got out of Brest with eight battleships but had failed to stop the British taking

Guadeloupe. He was able to get back into Brest at the end of 1759, but he had not achieved anything significant. The Minister of Marine since 1756, François-Marie Peyrenc de Moras, had provided very little clear leadership and had been replaced by a naval officer, the Marquis de Massiac, in 1758. Massiac had little impact on French policymaking and was replaced by Nicholas-René Berryer in October. During 1758 there had been a steady attrition on French naval units. Twelve ships of the line had been lost to various causes, including five at the fall of Louisbourg. However, it was the failure of French policy in Europe which led to the Foreign Minister, the Duc de Choiseul, taking the navy into a more central role in plans during 1759. Choiseul recognized that Britain could be forced to concentrate its resources at home if a credible invasion threat could be mounted. From early in 1759 preparations for an invasion were being made. The problem the French faced was that their naval resources were scattered. There were inadequate facilities to concentrate the naval and land forces until the last moment, but the concentration could be interrupted by superior local British forces. The Marquis de Conflan's Brest squadron of 21 line was inferior to the forces that Hawke had off Ushant. He needed the 12 line under de la Clue from Toulon to provide a degree of numerical superiority. The troops were assembling at Vannes in Brittany and Ostend to mount two invasions–the first in the Clyde and the second in the south east. The boats for the latter had to be assembled along the coast, down to Le Havre. Since the 1690s France had been compelled to attempt this complex channelling of resources whenever she wanted to undertake large-scale operations in the Western Approaches. It was essentially a communications exercise which was dictated by the vagaries of the wind and the fragility of the crown's relationships with contractors. It was a task that would have challenged even the most experienced administrators and in 1690, 1746 and 1759, it demonstrated the high level of skills of the French administration. Nevertheless, it was fraught with difficulty and delay.

British plans to resist this invasion were also well advanced. Additional forces were sent to Gibraltar under Vice Admiral Boscawen to watch for any attempt by the Toulon squadron, which was then at Cartagena in Spain, to move through the Straits. Vice Admiral Hawke was in command of the Western Squadron. Hawke determined to remain off the Breton coast as long as he could during the summer to prevent the departure of the Brest squadron or the arrival of stores and supplies by water. Rear Admiral Rodney bombarded Le Havre in July and August in an attempt to destroy the flat-bottomed boats being assembled there to transport the troops. Additional British forces sought out transports being assembled at Vannes in Quiberon Bay. Although they could not

reach the transports, they spent their time surveying the coast and watching Port Louis and Lorient.

In August de la Clue finally slipped past Boscawen at Gibraltar, but the latter caught up with him at Lagos Bay on 18 August, where Boscawen burned two French battleships and captured three. Two escaped and two others had sought shelter in Cadiz before the action, which were then closely watched by a larger British force in the offing. In the deteriorating autumn weather, the British watch on Brest slackened. A force from the West Indies got into the harbour, which provided Conflans with some additional seamen and on 14 November, while Hawke had been driven up to Torbay, he put to sea, intending to link up with the transports assembled in Quiberon Bay. Contrary winds held up Conflans until Hawke was able to come up and a chase began at noon on 20 November. The French rear was overhauled just as Conflans entered Quiberon Bay. Two French battleships were caught and two others foundered in the squalls. The next morning, Conflans ran his flagship, the *Soleil Royal* (80), aground and burned it. Another battleship ran aground and was wrecked.[26] Still others sought refuge in Aix roads.

The significance of this great victory is difficult to assess. The concentration of French naval forces had not only failed, but even the threat of significant French naval action had been broken for the foreseeable future. The impact on the Breton seafaring community, who manned those ships, was devastating. However, British naval historians have tended to credit Quiberon with the dramatic collapse of the French position in America and Europe.[27] Whether the invasion plan was still practicable so late in the year is open to doubt. French trade was already gravely damaged by the small cruising ships and privateers. French credit to fund the navy was already on the verge of collapse.[28] The British build-up in America was already underway and the colonists had organized to provide vital support services for the regular troops. Québec had fallen in September and British troops were making solid progress up the Hudson. It unlikely that French naval forces would have been able to interrupt this land based advance. Choiseul was determined to rebuild the navy, but reverted to sending out small expeditions as and when they could be mounted. The cruise of Commodore Thurot with six frigates from October 1759 until February 1760 caused a stir as he captured Carrickfergus and threatened the Irish coast until defeated and killed in an action with three British frigates. A small force of one battleship and two frigates under Dugue-Lambert got out of Brest in January 1761, but was hounded to the West Indies and back. In 1762, the Comte de Blénac got to sea with six battleships bound for the West Indies, but arrived too late to influence operations on Martinique.[29] In June 1762 the Chevalier de Ternay

captured Newfoundland, which he held on to until driven off by superior British forces from New York in September.

Quiberon Bay was a feat of great seamanship on behalf of Hawke and his seamen, but it was more an effect of British naval power than a cause of it. For some years, British naval vessels could act aggressively in French coastal waters at will. They outnumbered their enemies and equalled them in the quality of vessels. Their time at sea may have fouled the ships and exposed them to wear and tear, but improvements in victualling preserved health and experience at sea enabled the sailors to outfight their rivals. The battle greatly reduced the power of France to send out its small expeditionary squadrons, but financial collapse and the crisis in manpower were equally important constraints. The collapse of the French naval threat in Europe enabled Britain to divert forces at home to other operations, such as the capture of Belle Île in June 1761 and the expeditionary army to assist Portugal in 1762.[30] However, it was the fall of Montreal in September 1760 which released the vital British and American land forces that made the critical difference to operations in the West Indies rather than changes at sea. In June 1761 forces sent from New York captured Dominica, and by the end of the year there were adequate land forces to attempt Martinique, which surrendered in February 1762. Grenada and the Grenadines quickly followed.

In January 1762, Spain had been persuaded to enter the war on the side of France, but it was too late to have a significant impact on Britain's preponderant position at sea. British land and sea forces were large, experienced and well positioned to take immediate advantage of the situation. There was a resurgence of privateering at the prospect of Spanish prizes. British forces fresh from the capture of Belle Île and Martinique and from New York converged on Havana and after a siege captured the city in August 1762.[31]

In the East Indies, the British advantage at sea had increased. Two additional battleships arrived in June 1759. The relative proximity of Bombay to the Coromandel Coast compared to the French base at Mauritius was beginning to tell. Although three additional warships arrived at Mauritius, supplies were getting very scarce by the end of 1758. For a short while, d'Ache had two more battleships than Vice Admiral Pocock, but d'Ache had to conserve his force. Pocock managed to provoke a battle on 10 September 1759, but d'Ache refused further action, despite Pocock's continued provocation. When Pocock handed command over to Rear Admirals Cornish and Stevens, who had come out with additional forces, in April 1760, the British had a substantial numerical and positional advantage. Using Trincomalee to support them, they blockaded Pondicherry which finally surrendered in January 1761. A year later, Cornish escorted an army of regulars

and East India Company troops to attack Manila, which was ill-prepared to defend itself against this unexpected attack. The city surrendered after a short siege in October 1762. Although news of the capture did not arrive until after the ceasefire had been agreed and the island of Luzon was never fully pacified, it demonstrated a further extension of the reach of British naval power.

The Treaty of Paris signed in 1763 ended the most successful war the British had ever fought. The French overseas empire had been largely destroyed, and although their islands in the Leewards were returned to them, Canada was lost. Spain had lost Florida. Indisputably, this success had been bought by seapower. It was an achievement acknowledged not only by Britain, but by France and Spain as well. French strategy, which had evolved as a response to the apparent success of the *guerre de course* at the beginning of the century and the use of expeditionary squadrons up to 1748, had been shown to have had its day. France and Spain were presented with an unpalatable dilemma. The impact of war at sea appeared to have increased. For the first time, British seapower had not been compensated for by successes on land and the unprecedented reach of seapower meant that for the first time adequate forces could be projected at massive distances from Europe to achieve substantial results. If Britain was to be controlled it had to be done with seapower. Her geographical reach and power had to be matched. However, the gap between Britain and the Bourbons was greater than ever–not just in numbers but in the administrative and economic infrastructure and the political and professional confidence that made this power projection possible. The remarkable fact is that within 15 years, the Bourbon navies had eliminated the numerical advantage Britain possessed in 1763. They did not match the infrastructure, but they had made sufficient gains to challenge Britain directly in home waters and in every ocean. How they did this is vitally important to how seapower was perceived both then and in the future.

Clearly, seapower was perceived, primarily, in terms of the line-of-battle ship. In 1760, undeterred by an empty treasury, Choiseul encouraged patriotic subscriptions to build new large three-deck battleships mounting up to 100 guns to challenge the new British "90s". These large vessels, also built in numbers after 1763 by the Spaniards, were intended to stand in line against the British. The sea battle and the possibility of eliminating the powerful British fleet from the sea was taking a more central role in Bourbon strategic thinking. It was an ambitious project and, by itself, would not strike at the root of British global power. British seapower rested not just on the battlefleet, which was larger than ever before, but upon the expanding bases for squadrons overseas, Halifax, Boston, Port Royal, English Harbour, Bombay, Madras. These populous towns

provided the services needed to keep the large ships and squadrons in the theatre. In North America, they also had local maritime economies which were based on the trade routes north, south and across the Atlantic which thrived on privateering. Most importantly, Britain had land forces available in quantities that made substantial land operations practicable and it was these amphibious operations that projected military power ashore in a decisive manner. It was the ability of the British to provide overwhelming land forces and firepower, largely sustained by local resources, that destroyed the French in Canada, the West Indies and India. Battleships alone could not provide this crushing military force. On many operations battleships provided crucial additional labour and artillery, but it was the land forces that made the disciplined sieges and assaults practicable. For a brief period, between 1758 and 1775, Britain possessed these overwhelming land forces at different points of the globe. Seapower had not strangled France and Spain economically and forced them to surrender by the quiet control of sea lanes, as Mahan explained, but had smashed their colonial empires by direct assault, projecting land forces ashore and making it highly unlikely that they would recover them without coming to terms.

Chapter Nine

The acceleration of naval competition: 1763–89

When the Seven Years War ended in 1763, Britain was undoubtedly the paramount naval power, but far more important, naval power had proved to have a more decisive impact upon military and diplomatic affairs than ever before. In 1760 Britain possessed about 38 per cent of the entire naval tonnage of the world as well as a highly developed privateering industry on both sides of the Atlantic. The Bourbon powers, France and Spain, had about 30 per cent.[1] Britain managed to harness her naval force to American manpower and economic support to create an overwhelming professional field army in America, which ejected the French and Spaniards from a large part of their most valuable colonial possessions and gravely damaged their maritime commerce. It was a trajectory that had been evident since the 1690s and it hardly looked likely to change. Yet, by 1775 the combined Bourbon fleets outnumbered the British, possessing 35 per cent of world naval tonnage to Britain's 30 per cent. By 1780, Britain was at war with France, Spain, the United Provinces and the American colonies. Britain could still muster about 30 per cent of world tonnage, but her enemies had 46 per cent. Russia, Sweden and Denmark, all important and growing regional naval powers, also formed a hostile neutrality. Almost all the world's maritime powers were ranged against Britain. British landpower in America was also fatally weakened. Although Britain remained by far the most powerful naval state, she was not to have an absolute numerical superiority over her potential enemies from 1765 until 1800.[2]

This rapid decline in British naval superiority was not due to the collapse of the British navy, but to the remarkable growth of other navies. There was a sustained growth of naval forces between 1760 and 1790 that was unmatched during the century, except during the war years between 1740–48 and 1756–63. The average growth rate of

about 1.5 per cent per annum was not spectacular in itself, but was important in that it represented a sustained growth of many European navies, not the dramatic expansion of one or two states. The causes of this general expansion are still poorly understood, but some tentative ideas have been advanced.

The most obvious factor to someone observing the general diplomatic situation in Europe during the second half of the eighteenth century was the disengagement of the Atlantic powers from the struggles of central and eastern Europe. Despite Britain's dynastic ties with Hanover since 1714, British policy had long been evolving away from direct action in Europe or the Baltic. The victories of the Seven Years War seemed to confirm the victory of "blue water" over the "continentalists". This drift of policy was evident in the 1690s, quite clear in the terms of the Treaty of Utrecht in 1713 and heavily influenced ministerial thinking throughout the War of Austrian Succession. Since the middle of the sixteenth century, English foreign policy was dictated by the recognition that she could not inflict a decisive, crippling defeat upon her continental enemies. This kind of victory could only be achieved on land and in alliance with powers, such as Austria, the United Provinces or Sardinia. On the other hand, Britain's primary defence lay in controlling the narrow sealanes of western Europe and an alternative offensive strategy was the hope that some powers, such as the United Provinces or Spain, were vulnerable to major economic dislocation by attacks on their maritime commerce. With some exceptions, this had proved largely illusory and Britain's ability to cause major dislocation was less than expected. This left Britain with a third policy alternative which was to fight a war that focused not on the defeat of her enemy but upon leaving her stronger at the end of the war than at the beginning. It was this that underpinned British thinking, while leaving the means of achieving it–a maritime or continental commitment–open to debate.[3] In this respect the Seven Years War was no different from earlier wars. In 1748, the continental war had gone against the allies so that Britain's very limited colonial gains had to be negotiated away in a general settlement, but in 1763, as in 1713, Britain opted to secure its maritime gains with a less than equitable acknowledgement of the contribution of its continental allies.

However, the Seven Years War was a watershed because Britain had shown that a nation that monopolized the elements of seapower–dominant regional battlefleets, a large and heterogeneous maritime economy, an effective strategy against enemy commerce and substantial amphibious forces–could have a major impact on the powers of western Europe. Spain, which had consistently been unimpressed by superior naval power from the 1660s to the 1740s, could no longer do so. France, whose Atlantic economy had been growing since 1713, had sustained a severe shock. Her navy sustained a powerful

political and economic position in the Western Mediterranean, but France had never resolved the role of her naval forces in the Atlantic. During the eighteenth century the dynamic transoceanic trades were of growing political and economic significance, but the policy ambiguity remained. The *guerre de course* had seemed an effective policy during 1690–1713, but had lost its power by the 1740s. The expeditionary escort squadrons had been generally effective but had no real offensive power. By 1759 Choiseul concluded that this "indirect strategy" had failed and he had to revert to the "direct strategy" of 1690–3 and 1744–5–a direct invasion of Britain.[4]

While seapower had become more effective and its political impact on the Atlantic states more substantial, competing policy objectives were diminishing. France, which had seen its central European policy crumble since the 1730s, was not inclined to become a major contestant in the squabbles over Poland and Turkey, and Spain's interest in Italy had largely died with Philip V in 1746. Elsewhere in the Baltic and Mediterranean, disputes expanded into significant wars at sea.

The Baltic 1721–90

When the Great Northern War ended in 1721, Russia had emerged as a major regional naval power. British and Danish naval forces cruised to counter the Russian sailing fleet, which was protected by new fortifications of Kronstadt on the island of Kotlin (1723). However, the general poverty of maritime resources, particularly seamen, made the development of Russian naval power very difficult and after the death of Peter I in 1725, the political support for the navy became extremely inconsistent. For the Baltic powers, moving armies and supplies through the shallow coastal waters was as important as defending the deep-water routes. Navies had to be balanced between the battleships, cruisers and inshore oared and sailing ships. Russian ships assisted in the siege of Danzig in 1734 and in the Russo-Swedish war which broke out in July 1741 their galley fleet was important. The Swedes underestimated Russian resistance in Finland and accepted a truce in the wake of the coup that brought the Tsarina Elizabeth to the throne. Hostilities resumed early in February 1742. A Russian galley fleet transported troops under General Keith westwards to attack Swedish positions at Åland. The Russian sailing fleet managed to lure the Swedes away from their position off Hango Head, which enabled more galleys to pass with reinforcements for Keith's army.[5] The Swedes were in disarray, but a peace was arranged before significant damage was done. Although active in the Seven Years War, the Russian sailing fleet really began to cause concern in the

Baltic after 1780, when Catherine II began a major expansion of her fleet to assist her ambitions against Turkey.

Sweden faced a number of difficulties. There had been a growing divergence of priorities between the Swedish officer corps with its battleship base at Karlskrona aimed at Danish naval power and the government and army in Stockholm, who saw the amphibious Russian threat as the greater danger. Money was short and the navy had little interest in a coastal galley war. A 1722 plan by the College of Admiralty to build a galley fleet to counter the Russians was diluted by financial weakness. The battleships were high-quality vessels, but ageing and small. The lack of understanding between the navy and the army became apparent in the disastrous war against Russia of 1741–3. The galley fleet was reformed and in 1756 it was taken away from the navy and placed under army command. Its officer corps developed separately from the navy. In the same year a naval academy was established at Karlskrona.[6] During the Seven Years War, the Swedes and Russians put pressure on the small Prussian flotilla in the Baltic. The main fear was the appearance of a British squadron in the Baltic to support the Prussians. While the Swedes and Russians operated together, their joint forces seldom exceeded 22 line against a non-existent Prussian battlefleet. The Swedish galley fleet performed well enough in 1759 against Prussian forces established at Stettin. A small action on 10 September ended in Swedish victory which consolidated Swedish communications between the homeland and the islands off the coast of Pomerania. In 1760 a Russian fleet of 21 line covered an attack on Kolberg that failed. Kolberg finally fell to the Russians in December 1761, but without much support from the fleet. Seapower against Prussia had not been particularly significant, but it remained critical to Sweden and Denmark in the defence of their homelands and interests in Pomerania and Holstein respectively. Despite co-operation against Prussia, suspicion of Russia remained a key part of Baltic diplomacy.

After the coup, which established Gustavus III with increased royal powers in 1772, the Swedish navy developed in line with Gustavus' foreign policy ambitions. Gustavus' direction was unclear–Russia or Denmark could be his target. The navy was important to either, but the officers of the galley fleet had been important supporters of Gustavus' coup.[7] New rules and organization were established in 1773. A royal inspection in 1775 led to the College of Admiralty moving from Karlskrona to Stockholm in 1776, to be closer to the court. The officer corps was reformed to make professional competence more significant in promotion. In 1781 the famous ship constructor, Fredric Henrick af Chapman (1721–1808), was appointed Director of Naval Construction at Karlskrona. Chapman had extensive theoretical knowledge of engineering sciences and since the 1760s had been designing and building vessels for inshore operations. In 1780 he was

co-author of the plan approved by Gustavus for a new sailing fleet of battleships and frigates. Under his supervision, Karlskrona became one of the most extensive and modern yards in Europe.[8]

The impact of Gustavus' reforms are still a matter of debate, but by the summer of 1788 Gustavus was ready to attack Russia. While an army advanced through Finland and another, with the archipelago flotilla, was to move along the coast into the Gulf of Finland, a third army with the sailing fleet was to attack Kronstadt and land the army at Orainenbaum to advance on St Petersburg. The Russian fleet of 17 line under Admiral Greig met the Swedes, also with 17 line, off Suursaari island (Battle of Hogland) on 17 July. The battle was fought in line and after seven hours, the Swedes broke away in the darkness. Greig had done enough to avert the Swedish landing. Over the winter, Russian building of gunboats for its archipelago flotilla outstripped the Swedes. An action off Öland on 25 July 1789 between two evenly matched battlefleets was again indecisive, but the archipelago flotillas met in a decisive action just one month later on 24 August (Battle of Svensksund). Vice Admiral Nassau-Siegen decisively defeated the Swedish inshore flotilla. Swedish attempts to revive the plan of attack against Kronstadt in 1790 foundered in an indecisive attack on Tallinn in May, and a further attack on Russian battleships failed. Gustavus' mistakes allowed the Russian sailing fleet to blockade his sailing and archipelago fleets in Vibourg Bay. On 3 July the Swedish sailing ships broke out and Gustavus was able to take the inshore fleet to Svenskrund. An impetuous attack on the Swedes on 8 July ended in disaster for the Russians. The peace treaty restored the boundaries to the *status quo ante bellum*. Both sides had shown that seapower–exercised by a combined force of battleships, cruisers and inshore craft–were critical to the projection of land power in the eastern Baltic, but both had also shown that their defensive capabilities far outweighed their offensive power.[9] Russia remained a powerful force in the eastern Baltic, but not so powerful as to pose a vital threat to the interests of the other powers in the region. While the coasts of the Baltic remained open to traffic, and Russia remained prepared to trade its vital naval stores, it was in no one's interest to become bogged down in a war that was so well suited to defence.

The Eastern Mediterranean, 1720–90

At the other end of Europe, the disincentives to become engaged in extensive naval operations were also powerful. France dominated the trade to Smyrna, but other nations also traded freely there. While France exercised restraint, there was no reason to destabilize

maritime relations there. Piracy was still endemic, but French, British, Spanish and Maltese vessels acted as an acceptable check in the Western Mediterranean. In the Levant, the peace of 1718 left the Turks in control of the vital north–south trade routes, and they provided some protection for merchantmen. From about 1700, the Venetian sailing battlefleet, which had been built up since 1680, began to diminish. From a high point of 29 battleships in 1700, the fleet possessed only seven in 1755. Building programmes maintained the fleet thereafter at about nine battleships from 1760 until 1797. Smaller ships, such as galleys and xebecs, were used to control pirates. In 1784, two battleships were mobilized for a series of unsuccessful attacks upon Tunis, which continued intermittently until 1787.[10] During the same period, the Ottoman fleet was similarly reduced.[11] Only once in the eighteenth century did this balance appear to be under threat.

In October 1768 war broke out between Russia and Turkey. The initial Russian advances re-established them at Azov and Taganrog, and in the next few years, Russian forces advanced into the Crimea, Wallachia and Moldavia. The Russians' invasion of Wallachia in 1769, led to a plan to stir up Christian revolt in the Balkans by sending the Baltic fleet to cruise off the Greek archipelago. Britain, which wanted to reduce French influence in the Levant, was prepared to provide supplies at Portsmouth and Port Mahon as the squadron passed. It was at best a highly speculative venture, consisting of 15 warships, which left Kronstadt on 18 July 1769. The ships were poorly equipped and the crews entirely inexperienced and incompletely trained. The officers were the usual mix of foreign professionals such as John Elphinstone and Samuel Greig, who had both served in the British navy during the Seven Years War, and Russians, who varied from the commander in chief, Alexis Orlov, who had limited naval experience to Admiral Spiridov, who was a long-serving officer. The fleet slowly passed through to the Morea, where it carried out a desultory campaign which did not inspire a general revolt and only stiffened Turkish resistance. In May 1770, the Russians, with nine battleships, cruised eastward in search of the Turkish fleet, which they found anchored near Chios on 4 July 1770. A general attack on the 16 anchored Turkish warships went awry when Spiridov's flagship, the *Sva Evstafii* (66), ran foul of the Turkish flagship, the *Real Mustafa* (84). After a vicious battle, the Turkish vessel caught fire and both ships were destroyed in an ensuing explosion. The remaining Turkish ships cut their cables and sailed north to Chesme. Spiridov, who was rescued, pursued the Turks with his eight remaining battleships. The Turks drew up their ships in the traditional manner, closely anchored in line with their broadsides to the open sea. Spiridov decided to attack them

in an equally traditional manner–with fireships, under the command of Admiral Grieg. Covered by four battleships and a bomb vessel, four fireships moved in. Before they reached the Turks, one Turkish ship was alight from a bomb, but it was one of the fireships that did the decisive damage, attaching itself to the windward, northern end of the Turkish line, the blaze spread down through the Turkish vessels. Only one battleship survived the conflagration. Eleven battleships were destroyed and one was captured. It was the most complete destruction of a fleet in the eighteenth century.[12]

The Russians now had complete freedom in Levant waters, but despite straddling the important north–south grain trade route from Egypt to Constantinople, they could do little with it. For the next five years they cruised along the Levantine coasts, destroying Turkish shipping and making landings. By the time peace was concluded in 1774 by the Treaty of Kutchuk-Kainardji, the Russians had discovered that seapower in the form of battlefleet supremacy did not confer a decisive advantage in itself. The Russians had been able to maintain their fleet in the Levant with the assistance of Britain and the Italian states, but they had not been able to apply significant pressure upon the Turks. Seven battleships were lost–one by enemy action, two to the weather and four to decay, but small ships in large numbers were needed to create a major inconvenience to the scattered commerce of the Levant. Troops and artillery were needed to attract effective rebellion against Turkish rule and to make significant conquests. The Turks could not recover from the blow at Chesme, but neither were they forced to divert resources from the Wallachian campaign. By the terms of the peace treaty, Turkey suffered significant losses. Russian troops were established in the Crimea and on the northern coast of the Black Sea. The Turks were compelled to allow the Russians to fortify Azov and to let their merchantmen pass through the Dardenelles. However, the Aegean operations had not been a decisive factor in this débâcle.

Russian annexation of the Crimea in 1783 led to increasing tension with Turkey. Finally, in August 1787 the Turks crossed from their fort at Ochakov to the Russian fort at Kinburn on the Crimean side of the Liman of the Bug and Dnieper. Catherine II's plan to repeat the Mediterranean strategy with her Baltic squadron foundered on British and Dutch refusal to co-operate. Russia experimented with commissioning privateers in the Eastern Mediterranean, but without effective control or incentives the policy had little effect.[13] The fighting between Russians and Turks on either side of the Liman continued during 1787, heavily influenced by naval operations. By June 1788, the Russian flotilla at Kherson had been built up to undertake a direct attack on the smaller Turkish forces at Ochakov. Russian batteries at Kinburn forced the retreating

Turkish sailing vessels towards the northern shore of the Liman, nine of which ran aground and were soon surrounded by the small ships of the Russian flotilla. All were destroyed or taken. It was small ships, working inshore that had again proved important. Turkish counter-attacks failed and Ochakov fell in December 1788. Raiding and counter-raiding continued throughout 1789, including some by Russian privateers from Sevastapol. Neither side had an advantage, although Russian forces continued to expand from the yard at Taganrog and the new facilities established at Nicholaev on the Bug. A major action was fought off Kertch in the eastern Crimea on 19 July 1790. Admiral Ushakov had 16 ships mounting up to 40 guns which he disposed in line, centred on his flagship the *Rozhdestvo Chrisovo* (84). The Turks had perhaps 20 such vessels. The battle was indecisive as both commanders sought the windward gauge. Another engagement off Tendra on 8–9 September was more decisive. Russian gunnery proved more effective and the Turkish line could not hold, allowing the Russians to isolate and overwhelm two Turkish battleships. Further minor actions followed, but it was the advance of the Russian army that was deciding the matter. General Suvorov's advance extended the control of the Russian army up the Danube from its delta. The fall of Ismail near the mouth of the Danube to the Russians in 1790 and its defence throughout 1791 enabled the Russians to negotiate a ceasefire and a successful peace at the Treaty of Jassy, signed on 9 January 1792. Russia had gained the Crimea and all the north coast of the Black Sea from the Dniester to the Kuban. Seapower had been important in preventing the Turks from reinforcing their positions at Ochakov and protected Russian coastal positions from potentially destructive diversionary attacks. The war at sea had been between two reasonably balanced rivals. Both sides possessed approximately equal battlefleets and flotillas of small ships. The losses on either side were not significant, but Russian building after 1788 tipped the scales to give her a marginal advantage. However, the advantage was not so great as to confer upon Russia the critical advantage it would have needed to provide consistent logistical support for its campaigns. This lack of logistical support was one major factor in the Russian preference for direct attacks upon Turkish positions rather than siege operations.[14] The Russian Black Sea fleet expanded from seven to 21 major warships by 1792, but only once, in 1798, was it to play a significant part in wider European events. Otherwise, the Black Sea fleet was an expression of Russian interest in the sea, but remained apart from the general competition that accompanied expansion of the world navies in the second half of the century.[15]

France: recovery and expansion, 1763–78

In 1763 France was forced to come to terms with an unprecedented defeat. That defeat had arisen not from a catastrophe on land, but at sea. A signal that this was recognized occurred in October 1761, when the Duc de Choiseul became Minister for Marine in addition to his position as first minister, which he had held since 1758. The strategic position of France in these years was dismal. Her armies had little prospect of making significant gains against the allies in Western Germany, particularly since the crucial Russian offensive pressure on Prussia from the east ended with the death of the Tsarina Elizabeth in January 1762. It is unclear how the relative positions and prospects of the French army and navy were assessed during the last years of the war, but it appears that Choiseul believed that if anything was to be salvaged from the war, it would not be in Germany, but at sea. Despite crushing British colonial victories and the collapse of the French royal navy at the end of 1759, Britain was more vulnerable than Prussia or Hanover. Unlike on land, where fortifications and garrisons provided constant obstacles, the sea was not permanently occupied. Choiseul set about rebuilding the navy, initially by popular subscription. During 1762, he laid plans for an invasion of Britain and an attack upon Brazil. The preliminaries of the Peace of Paris prevented these plans proceeding far, but Choiseul had established a direction of policy for the restoration of French prestige and power in the postwar world that aimed at Britain and the colonies rather than central and eastern Europe.

For all the states of Europe, defeat on land has always been accompanied by dramatic consequences for prestige and power. Until the Seven Years War, defeat at sea or in the colonies did not have this impact, except for a few states like Britain and Denmark. For the first time, major powers like Spain and France experienced significant humiliation from this source. The loss of prestige was greater than the long-term material damage. Despite a more aggressive and effective British campaign against commerce, it appears that the French merchant community had developed a foresight and capability to react to periods of increased international tension. Stockpiling before wars and rapid restocking after wars avoided the worst economic consequences of trade disruption. Insurance premiums were high but still available, enabling merchants to hedge.[16] Trade recovered quickly, but the war exposed some basic administrative problems which undermined domestic confidence in the French crown. The traditional reliance on the credit of individual financiers had failed and the inability on the crown to manage a long-term expansion of the tax base, despite rising incomes, had become evident.[17] There was dissatisfaction, or at least lack of understanding, about the performance of the navy, its

officer corps and administrators. Choiseul was unable to tackle the fundamental fiscal problems of the French crown, nor did he provide significantly larger funds for the fleet, but he did provide a clear strategic focus for the royal navy and start the process of rebuilding and reform. By 1766 his strategic plans were shifting to central Europe, but he had begun a process that had started to gather its own momentum.

Given the expected attrition rates of long-term combat, Choiseul believed that Britain could only be restrained and even defeated by a direct invasion. After the peace, he continued to plan for this invasion. He aimed at building a fleet of 80 line and 35 frigates. This force was to unite with a rebuilt Spanish fleet. Such a combined fleet would have to confront the main British fleet and fight for domination of the Western Approaches and the Channel. Intelligence was gathered from the English coasts and Choiseul originally planned to be ready for war by 1767.[18]

One of the key reforms was to end the bifurcation of command within the dockyards. Since Colbert's time the administrative control of the yards was in the hands of the professional administrators, the *officiers de la plume*, while the military command lay with the naval officers, the *officiers d'epée*. From 1765 they were to work together on the building programme, with defined areas of responsibility. It met with limited success, but reforms continued after Choiseul's fall from office in 1770. A plan to involve third officials, the colonels of the new marine establishments, in 1772 failed and was revoked in 1774. In the end, the naval officers won the contest, being given overall control of all matters in the yards in September 1776.[19]

Few would have gambled on the triumph of the naval officers in 1763. They were seen as a closed clan that resisted both the court and the administration and had not performed well during the war. Over the course of the half century, membership of the senior ranks of the navy had slipped away from the Paris and court-connected nobility to an elite provincial nobility.[20] Choiseul signalled his distrust by promoting an army officer, Charles-Henri d'Estaing, to the rank of a naval general officer, *chef d'escadre*, for an attack on Brazil in 1761. He also planned to replace naval officers by army officers in colonial governorships. In 1763, d'Estaing was the author of a plan to reform the naval officer corps. Although, d'Estaing's plans ranged across many aspects of naval personnel and organization, it was seen as a direct attack on the old officer corps. It was linked to a plan to make it possible for volunteers to hold substantive rank in the royal navy as well as cadets who had passed through the exclusive *gardes de la marine*.[21] While the officer corps recognized that the admission of volunteer officers from different professional and social backgrounds was inevitable during wartime, they could not ignore the threat to their position. They reacted by creating professional and technical

rather than social barriers around their profession. The promotion of sciences and nautical studies as marks of the officer, and the struggle to ensure that the teaching of these subjects was in the hands of those nominated by the corps, was an important part of the "professionalization" of naval officers in the last quarter of the eighteenth century. It was important that these reforms were guided with the approval of the officer corps and Choiseul's attempts to push them to reform had been enough to stimulate them into action. The continued pressure from Choiseul's successor, Bourgoise de Boynes, after 1770 caused only distrust and anxiety. In 1773 a new naval school was established at Le Havre which combined theoretical studies with cruises to improve practical skills. The emphasis on learning was reflected in the renaming of the aspirant officer from *garde* to *élevé*, but a reaction was setting in. In August 1774 Boynes was replaced by Sartine and the Comte de Maurepas, who had been Secretary of the Marine between 1726 and 1749, returned to the king's council in 1774. The officer corps was restless at the changes. Louis was aware of this mood and their desire to define their profession in military and navigational terms. In 1774 he had refused to name one of the new training ships at Le Havre, *Lycée,* preferring a name more in keeping with the sea than the school, and on 2 March 1775 he closed the school. In 1772 the officer corps had been divided into eight marine regiments attached to one or other port. This challenge to the identity of the corps was abandoned in 1775. A potential threat to the social position of the corps also was averted as the role of the volunteer "bleus", who had not passed through the *gardes*–was defined more clearly as auxiliaries, distinct from the professional "rouges" who were to command the major warships.[22] The disputes between the theoreticians and exponents of practical seamanship continued until the end of the Ancien Régime, but the discourse did a great deal to establish a new discipline among the aspirant officers and the officer corps as a whole.[23]

Gradually, the power of the officer corps recovered, not just because of its social position, but because it appeared to be addressing the main issues confronting the profession. Tactical doctrine was evolving. The battles since 1744 had not been classic battles of the line, but defensive actions against pursuing British forces. In these circumstances it was difficult to formulate an offensive doctrine. French officers had concentrated on manoeuvres rather than combat. That the British navy had to be attacked and defeated was evident in Choiseul's strategy of invasion and recognized in French naval writings. Bigot de Morogues, who had substantial fighting experience at sea and had been commandant of the Académie set up at Brest in 1752, published his *Tactiques navale* in 1763. He was aware that a smaller fleet always had to avoid being doubled by its larger opponent in a line of battle. The French fleet had always been

numerically smaller and he could only see the old tactic of close action and boarding as a remedy. At a time when the British navy was exploring more complex signalling and tactics, Bigot believed that old-fashioned courage rather than intricate manoeuvring was required for the French navy. It was a sentiment echoed by Bourde de la Villehuet, in his *Manuel des marins* published in 1761.[24] The difficulty with this offensive doctrine was that the British fleet had the more recent experience of the offensive chase. Nevertheless, it seems that senior officers recognized that the political fate of the navy rested on its offensive spirit. In France and elsewhere there was less trust in the traditional means of conveying tactical doctrine. Practical service on the ships, experience of the received signalling and fighting instructions, shipboard training and discipline were the main ways of learning. Young army officers had long had treatises on tactical doctrine to inform their education in dedicated academies and their regiments, but it was not until the 1760s that the formal education of naval officers across Europe began to reflect this pattern of learning. Colleges were established in Sweden and the United Provinces, and essays on naval manoeuvre and signalling began to appear in France, Spain, the United Provinces and Britain.[25] The link between the general European Enlightenment and the education of Europe's naval and army officers is still in need of substantial research, but there appears to be some grounds for thinking that the middle of the century saw an acceleration in the demand for professional officers who could marry theoretical and practical learning experiences.

This professionalization was also part of a wider European movement. Like Spain and Britain, the possibility and attractiveness of exploration in the most distant parts of the world had been roused by the mid-century wars. Science, administration and the drive for maritime or colonial power came together in these voyages.[26] In 1766 the Comte de Bourgainville began a three-year voyage that took him to the Falkland Islands, the Great Barrier Reef, the Solomon Islands and Java. It was the first such circumnavigation sponsored by the French crown. The British sent Commodore John Byron on a similar route and in 1766 Samuel Wallis was instructed to make discoveries in the Pacific in the southern ocean. The most famous voyages were, undoubtedly, those of Captain James Cook, between 1768–71, 1772–5 and 1776–9.[27] Cook, under the direction of the Admiralty, did much to explore the Pacific, ranging from Australia and New Zealand up to the northwest coast of North America. In 1782, Alexandro Malaspina took a Spanish frigate around the world and in 1788 he departed on another voyage to map Spanish territories in the Pacific. The explorations by British, French and Spanish navigators continued into the 1790s and generated the first serious diplomatic crises associated with the Pacific.

The impact of these voyages on seapower is difficult to assess, but it may be assumed that the long voyages did something to stimulate thinking about health and sanitation on warships. The Atlantic passage lasted, on average, about six weeks for a British force. The longest part of the passage was beating down to the latitude of the Azores before making the crossing on the trade winds. The passage was shorter for French and Spanish vessels. Six weeks was about the maximum time a seaman could remain at sea without fresh victuals before scurvy set in. Delays and cruising consistently increased their exposure to scurvy, but the longer passages across the Pacific made it almost unavoidable. Food was also perilously short and shipboard hygiene was critical. However, it is also clear that the voyages were made possible by discoveries and improvements that had already occurred. The work of Dr James Lind, *Treatise of the scurvy* (1753) and *Essay on the most effectual means of preserving the health of seamen* (1757), gradually became known across Europe.[28] Later the work of Sir Gilbert Blane, who served with Rodney's squadron in the West Indies in 1780–2, helped to preserve health in tropical climates in later years. Medical improvements were slight during the whole of the period of the sailing navies, and recent work on shipboard mortality suggests that the really important factors in reducing death and sickness were organizational rather than scientific. There may have been a close relationship between the delays experienced by crews, cramped aboard their ships, waiting for an opportunity to sail, the pre-boarding port environment, shipboard hygiene and the incidence of mortality. Here was a hidden advantage of seapower. British ships were in port less, forced to delay less by hostile forces in the offing and, by the 1770s, well advanced in improving the hygiene of their ships. French ships had been considered more healthy than British ships arriving in the West Indies at the beginning of the century, but this was reversed by 1780. The shorter voyage time that the French had enjoyed was more than eliminated by being forced to wait in port for an opportunity to slip out.[29] While the contribution to ideas on health and hygiene stimulated by these long oceanic voyages is currently unclear, the importance of the voyages in generating public support for maritime affairs in undoubted. State-owned navies were the organ of a dramatic expansion of European exploration, scientific knowledge and power, placing naval officers at the centre of publicity as a worthy and technically proficient profession.

As the French officer corps re-established its authority over the royal navy, Choiseul had initiated other reforms that were to make the navy more formidable. The ports of Brest and Toulon were developed and strengthened. New arsenals were established at Lorient and Cherbourg. Hospitals were opened at Brest, Toulon and Rochefort in 1768. However, timber stocks remained a problem throughout the period as did the

lack of seamen. In 1772 Boynes created 10,000 marine infantry to assist on board ship, supported by three companies of marine artillerymen.

While the infrastructure was consolidating, the question of ships remained central to any attempt to challenge British naval power directly. The British building programme, which had been laid down during the war, was gradually completed up to 1765, thus widening the gap between Britain and the Bourbon powers. Choiseul's rebuilding plans could not get underway until after 1763, and even then with limited funds, but in the years between 1766 and 1770, France and Spain built more than double the British tonnage, so that despite Choiseul having despaired of Spain and France ever catching the British, the Bourbon fleets actually had more tonnage available. The British fleet numbered about 126 battleships, 76 cruisers and 33 smaller vessels, amounting to a total of about 350,000 tons. The French possessed 68 battleships, 35 cruisers and 24 small vessels, totalling 219,000 tons. The Spaniards had 55 battleships, 21 cruisers and 19 smaller ships, totalling 165,000 tons. The building policy had not met Choiseul's plans for 80 battleships, but the British advantage had been severely dented. The period is also characterized by French attempts to reconstruct their fleet around a number of homogeneous designs. The large British three-decker "90s" and "110s" had to be countered. Choiseul did not like the concept of three-deck warships, but between 1778 and 1785 the type was developed. The "80" was also developed between 1777 and 1786. By 1790, under the direction of Jean Claude Borda, inspector general of naval construction (1780–99), talented designers, particularly Jacques Noel Sane, created for France a navy with a high level of homogeneity around some excellent basic designs–the 18lb frigate, and the "74", the "80" and the "110" battleships.[30]

However, it is important to emphasize that seapower cannot be measured purely in terms of this crude calculation. Whatever the relative numbers of ships, seapower had to be able to achieve something decisive. In the case of France, decisiveness was seen as dependent upon Spanish co-operation. It was also dependent upon the fiscal and domestic security of the state. The prospects of Spanish co-operation in an offensive war had faded by 1767 and by 1770 France was faced with a fiscal and economic crisis. The French navy had developed a great deal by 1770 and was to continue to strengthen as its officer corps and infrastructure evolved, but it was still a very fragile force. Particularly, a practicable offensive strategy and tactical doctrine had not been clarified. A number of diplomatic crises during the 1760s demonstrated that France was unwilling to use its rebuilt navy in a direct confrontation with Britain. The most humiliating experience occurred in 1770, when Louis refused to support Choiseul and decided that he would not join with Spain to resist British demands over the evacuation of the Falkland

Islands. It was a war from an unexpected quarter, America, that was to provide the opportunity for this to develop. France provided arms to the American colonists and ports for their privateers but remained neutral in the revolt which broke out in 1775. However, over two years, the fleet was gradually put into commission. The slow build up minimized the strain on the still weak supply system in France. By early 1778, the Foreign Minister, Vergennes, believed that France could put to sea 59 line-of-battle-ships, roughly equal to the number that the British could man within one campaign. However, he was aware that this parity was only temporary and that to survive a longer war, Spain must join.[31] When news of the American victory at Saratoga arrived in March 1778, Louis took the calculated risk and recognized the United States, thus opening a war with Great Britain. How French naval power would perform with its rebuilt royal navy was an open question.

Spain: 1763-78

When the Seven Years War ended Spain, like France, had suffered an unprecedented defeat. Like France, Spain recognized that it had to do something to defend its maritime interests against British domination. The reforms followed a very similar pattern to those in France. The administration of the dockyards, which had been split between the civil intendant and the senior naval officer, was changed to shift power into the hands of the military officers in 1772. New *juntas del departmento*, consisting of six military officers and the intendant, gave the senior military officer effective control.[32] The expansion and professionalization of the naval service was also evident. A school of engineers and shipwrights was established in 1765. In 1770 a corps of engineers was set up and consolidated in 1772. The officer corps expanded and the naval administration reached a peak of influence and effectiveness before its dramatic decline in the late 1790s. Its management of the woodlands extended to more remote regions and its husbanding of maritime manpower enabled the navy to grow as an effective force. The quality of design and building showed the vitality of the royal shipbuilding industry. After experiments with French designed "74s", the Spaniards settled by 1780 on the "74", "80" and the three-decker 110-gun battleships, which were both powerful and durable. Royal sponsorship of scientific investigation and exploration was important and developed along the same lines as in Britain and France. Charles III (1759–88) was also determined to protect his American dominions in both oceans.[33]

Between 1761 and 1775, the Spanish navy built 20 cruisers and 34 battleships.[34] Although it continued to suffer diplomatic defeat by the British, whose contempt of Spain was stronger than that of France, Spain was in a good position to defend itself. Its positions in the West Indies were fortified and well placed to support a regional fleet. Spain's chronic lack of money made her government wary of war, but the humiliations of the 1760s, the consolidation of its royal navy and the growing embarrassment of Britain in her North American war suggested that Spain might possess a degree of seapower that it had never experienced before.

Britain: 1763–78

The distinctive feature of these years is the long-term failure of British seapower as a deterrent either to colonial rebellion or war with European powers. Britain had ended the war with over 300 warships, including 135 battleships.[35] Others were still on the stocks when the peace came. For the foreseeable future, Britain would have a substantial numerical superiority over her potential enemies. The number of seamen in service was gradually reduced from 85,650 to 16,000 by 1765. Small squadrons were appointed to North America, the West and the East Indies. By 1764 Britain was protected by 20 guardships, and her trade by a few cruising frigates; 41 other battleships in good repair were held in ordinary and a further 80 could be fitted out after repairs. It was a substantial force, structured in the knowledge that in the first phase of any crisis only 40 battleships could be manned. This was enough, and in the second year of a campaign Britain should be able to rely on the reserve of battleships.

All the postwar ministries recognized that Britain's influence lay in her pre-eminent seapower. The prime minister, George Grenville (1763–5), had been a member of the Admiralty in the 1740s, and despite retrenchment, was prepared to allow the navy debt to rise in order to maintain the fleet. This policy was continued by his successor, the Duke of Rockingham (1765–6). Under the Earl of Chatham (1766–7) and the Duke of Grafton (1767–70) the overspend was challenged, but the First Lord of the Admiralty in this period, Admiral Sir Edward Hawke (1766–71), preserved his budget at a time of depression and falling prices.[36]

This was an important development for British naval power. Whereas defeat commonly stimulated reflection and change, victory, in this case, did not bring with it a sense of complacency. Continued investment and innovation was apparent throughout the 1760s. The reasons for this have not been fully examined. It was a period of political instability,

but the relationship between political manoeuvring and public support of the navy has not been researched in detail. Equally, the victory in the Seven Years War seems to have had a remarkable impact on British thinking which is in need of detailed study. It was a victory that was clearly associated in the public mind with naval power, often to the neglect of other vital aspects such as the American contribution or the army in Germany. There was the usual expectation of financial economies at the end of the war, but the navy did not suffer dramatically. This relative immunity continued during the 1780s, when a parliament much more hostile to government expenditure was looking for significant spending reductions. What had happened needs thorough investigation and only the broadest speculation is currently possible. A striking factor was the coincidence of dramatic naval victories in 1759 with equally dramatic colonial conquests and the clear humbling of the old Bourbon enemies. Contemporary opinion linked these three events together, erected a causal relationship and extended this virtuous circle to the underlying virtues of the British political system. It provided a powerful justification of that system which was in tune with other trends in European and American thinking about liberty and effective government. The ideology of liberty and naval power had a long history in Britain and the concurrence of events may have been enough to establish an unchallenged orthodoxy. Strong traces of this "blue water" ideology remain in today's writing about naval power. Evidently, the naval victories of 1759 were important, but it is the manner in which they interrelated with other events that was and remains relatively unexplored and unacknowledged.[37]

Whatever the reason for this strengthening of naval ideology, it was highly significant. It was not that extraordinary funds were found for the navy, but that attention was directed to the navy over decades that was genuinely aimed at improving its performance. Although it cannot be proven that there was a qualitative change in the management of the navy, it is a possibility that deserves a great deal of attention. The dockyards had been neglected during the war years as all attention was directed to the ships at sea. The growing size of the fleet and individual warships had left the royal yards increasingly ill-equipped to manage rapid refit and repair of the major warships. In 1760–1 plans were laid to develop Plymouth and Portsmouth. These plans were extended to the Thames and Medway yards in 1764–5. According to James Haas, this was "the first example of long-range planning for the dockyards".[38] Although the plans had to be reduced to meet budgets, work commenced in Plymouth in 1765. A programme of repairs was established and renewed efforts were made to standardize the design of ships, but this time around Slade's "74s" and "64s" that had proved themselves in the war.[39] Experiments were undertaken in coppering the bottoms of ships to protect them against worm and

fouling by weed. Anti-scorbutics were tested, pumps, blocks, tackles, timber preservation and yarn tarring machines were tried. As in France and Spain, the control and sources of timber were adjusted to improve supply.[40] In 1771 the Earl of Sandwich became First Lord of the Admiralty. He remained in that post until 1782 and received much of the opprobrium for the defeat in the War of American Independence. In recent decades, starting with the publication of his correspondence in 1932, his reputation has undergone a major change. Today he is seen as a dedicated and able naval administrator.[41] He intended to lay in three years' supply of timber to be on hand for the expansion of the fleet. Between 1771 and 1778 he conducted annual inspections of the dockyards which, combined with the introduction of piecework in 1775, were designed to improve efficiency and reduce fraud. The overall impact was limited, and although James Haas is highly critical of the administration's performance, the results must be put in context.[42] It may be that the visitations were stimulated more by political attention than naval requirements. Visitations can often find abuses and inefficiency as it is they that set the definitions. However, if the staff of the yards perceived that the navy had done its job during 1756–63, they may have thought that they had been effective. The need for change was not evident and therefore resisted. This is not to suggest that the visitations were not useful. They were part of a process that was continually pressing for improvement. As public attention remained on the navy during the 1780s with general approval, the funds and the infrastructure of the Royal Navy continued to accumulate.

Public approval was partly encouraged by the successful use of seapower during the 1760s. This was itself partly owing to the ministry focusing its foreign policy objectives on those things which were amenable to pressure from the sea. In 1764–5, French and Spanish threats to the Turks Islands and Honduras were averted by a show of force in the West Indies. France also retreated from an attempt to expand their settlement on the Gambia and withdrew from a confrontation over Newfoundland. Denmark was threatened in 1772 when George III's sister, Queen Caroline Matilda, was imprisoned. The Danes gave way and she was exiled to Celle. Also in 1772, British threats prevented the French from sending a squadron to the Baltic in support of Sweden. The most successful use of seapower was the Falklands Crisis of 1770. In June 1770 the Spaniards occupied Port Egmont, which had been recently settled by the British to open up the passage to the Pacific. The British were well prepared to mobilize, unlike France or Spain, and they used the situation to apply the greatest possible diplomatic leverage. Once Louis XV refused to support Spain, there was little the latter could do but agree to evacuate the islands. Both France and Spain had been humiliated yet again.[43]

However, there were still problems. The navy was less effective when it was not directly threatening an exposed colonial position or a country like Denmark which was very vulnerable to seaborne attack. Too much pressure could result in a war which Britain did not want. Too little and seapower did not carry a threat. The ransom for the restitution of Manila to Spain was never paid and the Chatham ministry could not find a way of exerting naval power on Spain. Britain could not compel France to destroy the fortifications around Dunkirk and was divided on the wisdom of war to prevent the French occupation of Corsica in 1768. In 1771, French forces were building up at Mauritius, which had to be matched. Spain and Portugal were close to war over Paraguay in 1774. The British were also well aware that the French and Spanish were building up their navies, but success over the Falklands gave the ministry some hope that they had the measure of the Bourbons.[44]

Since 1763 the Royal Navy had been undertaking another important role in North America. It had been engaged in suppressing smuggling between the British and French colonies between 1759 and 1763, and Vice Admiral Colvil was called upon to use his 26 ships to assist the customs service to tax the Americans. By mid-1763, Royal Navy vessels were making about 50 per cent of the seizures under the new Revenue Act. The hostility this engendered was added to the long-standing fear of the press and by 1766, there was entrenched opposition to the navy. By this time the Royal Navy was a vital refuge for the revenuemen and the stamp distributors who had the task of administering the hated Stamp Act of 1765. The Commissioners of the American Board of Customs, established by the Revenue Act of 1767, also became refugees on His Majesty's ships and it may be that it was only the presence of the *Romney* at Boston in June 1768 that prevented a crowd from storming Castle William in the bay. The Boston Port Act of 1774 closed the port in retaliation for the Tea Party of December 1773 and it was again the Royal Navy that was supposed to enforce the closure. Although it was the presence of a British army, which moved from policing the western frontier to garrisoning Boston in 1768, that was the major cause of friction, the Royal Navy played its part.[45] Naval officers were aware of the tension that their presence caused in maritime communities. They avoided pressing ashore or from coastal shipping. Seamen made up a large part of the populations of ports and played an important role in fomenting popular opposition to royal government. Deserters from royal ships could be sure of a sympathetic reception in New England towns.[46] In 1763 Britain had exercised a genuine and effective seapower in the Americas. It was based upon the manpower, shipping, victualling and capital resources of North America. It was these resources and a large British regular army that gave the Royal Navy an amphibious power capable of destroying the colonial control of her

enemies. Privateers and small warships provided an intensity of attack, penetrating into numerous creeks and bays, destroying and seizing property. In 1775, Britain was reduced to naval power–the power of about 30 ships, poorly supported, victualled and manned, facing a hostile maritime community.

War broke out in April 1775. About half of Vice Admiral Samuel Graves' force was scattered up and down the American coast. With the other half he supported General Gage's attack upon Bunker Hill on 17 June 1775. He protected Boston from the encroachment of the rebels on the seawards side and he raided up the coast to Maine. The burning of Falmouth (Portland) in October 1775 achieved some infamy for Graves, but little good. A force was sent to Norfolk, Virginia, which occupied and then destroyed the town. Just as the British had found in the 1690s against France, naval power gave them the ability to spread terror into coastal areas, but it could not have a decisive impact on events ashore. The attempts to blockade the Americans, whether in New England or the Chesapeake, failed. The American merchant marine was so large, its maritime economy so diffused along the coast and its sophistication in using Dutch, French and Danish flags to trade to the West Indies so great, that effective blockade was impossible.[47] By the end of the year, Graves' force had exhausted itself and by February it was clear that the position of the army in Boston was untenable. Graves' successor, Rear Admiral Molyneux Shuldham, assisted in the evacuation to Halifax on 17 March 1776.

The Americans, were not slow to try to convert some of their merchant ships for naval purposes. Despite an ambiguous legal situation in which privateers taking up arms against British ships might be perceived as pirates, Congress resolved to approve commissions for privateers on 23 March 1776. Perhaps 2,000 to 3,000 American privateers put to sea during the war. Their numbers probably exceeded that of Britain, whose 2,676 privateers sailed against the commerce of the United States, France, Spain and the United Provinces.[48] In 1775, George Washington organized a small force of Marblehead schooners to intercept supplies coming into Boston. British transports and storeships soon began to fall victim to these raiders. Eventually, 11 of the 13 colonies organized their own naval units and on 30 October 1775 Congress authorized the purchase of four warships. In December the first purpose-built frigates were ordered for the Continental Navy.[49] The Navy was not an unqualified success, but its one major organized attack, on Nassau in the Bahamas in March 1776, was a dramatic victory. The place was a storage depot and provided booty in the form of cannons, arms and ammunition for the rebel forces. Both sides were also active on Lake Champlain during the abortive American attack upon Québec. These river craft, propelled by oar and sail, were as essential to mobility as in the Hudson and St Lawrence campaigns.

During 1775, the British reinforced their naval forces. By early 1776, 51 warships, one-third of the Royal Navy ships in service, were in North America, but were unable to make significant impression on the Americans. American privateers and warships preyed upon unescorted vessels, to which the traditional response was to adopt convoys where possible. This need for convoys imposed further problems, by causing delays and creating friction between the different departments of state.[50] The matter became of paramount importance after the failure of the New Jersey campaign in 1776.

The ministry in London was torn between conflicting strategies. They knew that they had to concentrate a major army to act offensively against the rebels, but they were also desperate to stop the spread of the revolt by supporting the threatened positions at Québec and North Carolina. It was decided to capture New York, but in the meantime, forces were sent to assist in an attack upon Charleston being undertaken from Boston by General Sir Henry Clinton and Commodore Sir Peter Parker. The attack by Parker's ships upon Fort Sullivan, which covered the mouth of the river, was a complete failure with the loss of one frigate. The main expeditionary army from Britain, under the command of the brothers, General Sir William Howe and Admiral Richard, Lord Howe, arrived at New York in August and General Howe's army drove the rebels from New York, through New Jersey to the Delaware. The Royal Navy provided supporting artillery fire as its ships sailed up the Hudson. However, the failure of the navy to use its mobility to trap the retreating rebels on Manhattan Island or the east side of the Hudson has been questioned and more work needs to be done to try to establish how the army and navy perceived their roles in these crucial months.[51] The escape of Washington's army led to the American victories at Trenton and Princeton and the ultimate failure of the campaign by December 1776. Although Howe was secure in New York, he was deprived of the valuable land from which to feed his army. From now on, all munitions and almost all food, forage and kindling would have to be transported across the Atlantic.

These demands were unprecedented and the story of how the administration managed to keep the supplies moving across the ocean for an expanding war effort has been explored in detail by David Syrett.[52] On the whole the administrators succeeded, adapting their procedures, suppliers and responsibilities as they went. However, their efforts were threatened by a number of factors. Underlying the whole war effort was the problem of strategic confusion. The campaigns of 1776–7 were confused. The British occupied Philadelphia and tried to campaign down the Hudson at the same time. The Royal Navy, which had to fight its way up the Delaware to open sea communications for the army in Philadelphia, found its warships threatened by the small American galleys and

gunboats which operated in the river. Resistance on Mud Island was eventually crushed by batteries erected on the shore, rather than the ships. The Royal Navy continued to prove that its mobility gave the British the power to act where they wanted along the coast. The centre of the infant Continental Navy, Newport, Rhode Island, had been taken by a well executed amphibious action in December 1776 and the British were pleased that the Delaware campaign led to the destruction of much of the Continental Navy, but they had to recognize that they did not possess the proper resources, either quantitatively or qualitatively, for intensive riverine campaigns.[53] The occupation of Philadelphia ended in May 1778 and with the retreat to New York, access to the resources of the Pennsylvania countryside again disappeared. The strategic problem was, in a sense, solved when, after news of Burgoyne's surrender at Saratoga reached France in February 1778, Vergennes finally decided to make a treaty with the United States and assist the colonists. The threat posed by France to Britain and her West Indian colonies was now so great that this had to be the focus for the war. However, Britain was ill prepared to meet the threat in the immediate term and it only increased the Royal Navy's problems.

Another problem was the expanding American threat from the sea. By the end of 1777, American warships and privateers were operating in European waters from the Irish Sea to Biscay. Despite diplomatic tensions, France provided a market to sell colonial produce and purchase badly needed war supplies. She also gave American raiders access to her ports to refresh and sell their prizes. Not only was this a direct threat to the British war effort in America, but also threatened the whole of British maritime trade. Although the Americans posed no substantial threat to the economic viability of British trade, their impact on confidence was tremendous. The inability of the Royal Navy to stop these attacks or to stop supplies reaching America from France was a growing problem in maintaining the war.[54]

The final problem linked the others together. This was the potential threat from France. French sympathy for the rebels was obvious as were their naval preparations. There was growing tension as French commerce was intercepted by privateers and royal warships.[55] As the war dragged on during 1776 and more of the navy was sent to America, there was growing reluctance to send additional warships, particularly battleships. This generated increasing tension between the army in America and the ministry in London over the use of naval resources. How it would have been resolved is impossible to know, as it was overtaken by events. In March 1778, France made a commercial treaty with the United States, implicitly recognizing their independence. Neither France nor Britain were quite ready so refrained from declarations, but war was now inevitable.[56]

Up to this point the war had a crucial maritime dimension. Both American and British forces were sustained from across the sea. Neither side had the power to fracture the supply lines from Europe. Britain had a maritime mobility that the Americans lacked, but had been unable to make it pay as a decisive advantage and found that projecting this naval power inland by waterways was extremely dangerous. It was a war of attrition in which the sea provided important means of resupply, but battlefleets had not played a significant role. The Americans had no battlefleet to threaten the British chokepoints in Europe, the West Indies or North America, while the Americans themselves had few chokepoints. Their coastline was long and their potential ports and havens too many for any battlefleet to cover. After 1778, this changed completely. The French navy threatened to overthrow this delicate balance as Britain could be threatened at all her critical points by a battlefleet. The war had shifted from a naval war in which the Royal Navy was trying to support an army of conquest and occupation, to a full maritime war in which the resources of European powers would again be pitted against one another.

Global maritime war: the threat to British supremacy, 1778–80

The war that erupted over the spring and summer of 1778 has been seen as the classic naval war. It was the conflict from which Mahan drew his most explicit conclusions about the principles of naval warfare and made the most forceful judgements about the combatants. For the first time since the seventeenth century, there were a series of deep-sea naval battles fought between nearly equal adversaries who depended upon the sea for the prosecution of the war. It seemed that either side could reap decisive advantages from seapower.[57] The war began with fears and disappointments on both sides, continued indecisively, but ended between 1781 and 1782 with seemingly critical naval operations.

From March 1778, Britain and France were faced with major strategic problems. The war in America had posed a fundamental problem to Britain. The victory had to be won on land. In the Seven Years War, that land victory was achieved by substantial British troops, American provincials and Indian allies fighting against smaller and dwindling numbers of French regulars, colonists and Indians. After 1775, Britain had a military objective of entirely different proportions–to achieve a land victory against many more hostile colonists with far fewer military resources. The cost of building up the land forces from newly raised battalions and German auxiliaries had to be found by minimizing the naval costs.[58] An acknowledged and calculated risk was taken to limit the

mobilization of naval resources as much as possible. So, when war broke out with France in 1778, the Channel Fleet had been relatively neglected to put all efforts into operations in America. Only 20 battleships were ready for service under Admiral Augustus Keppel, and although others were being prepared it would take time. Britain did not want to provoke France into action before her fleet was ready. In the confused period before hostilities were committed, the British plan was to send forces from America to take St Lucia in order to establish a base from which to threaten France's most precious Caribbean colony, Martinique.

France had its usual problem of how to use its fleet effectively against Britain. Spain resisted attempts to embroil her in the war. Vergenne knew that any naval advantage the French possessed would be short-lived. In Brest, the Comte d'Orvilliers had 27 battleships ready with four more arming. It was enough to contest power in the Channel, but hardly enough to be sure of a decisive advantage. During the early 1770s plans to invade Britain had been explored, but nothing had been done to improve the supporting facilities in the Channel that would be needed for sustained fleet and amphibious operations there.[59] The 12 battleships and five frigates at Toulon under the Comte d'Estaing might be brought around to Brest if they could get past the British at Gibraltar. European operations offered little prospects of a victory that would bring Britain to the negotiating table. On the other hand a major force in America might overwhelm the smaller British naval forces there and effectively stall British operations. D'Estaing and the Toulon squadron was ordered to America, and sailed on 13 April 1778.

The campaign was extremely disappointing for both sides. D'Estaing had a slow passage and missed the mass of British transports and warships withdrawing from the Delaware to New York. D'Estaing also felt unable to attempt an attack upon New York itself, although Howe's smaller forces felt gravely threatened. The French squadron cruised up to Newport to besiege it with American forces, but was deflected by Howe, who used his smaller squadron, to draw d'Estaing away.

On hearing of d'Estaing's passage to America, the new commander-in-chief on that station, Vice Admiral John Byron, sailed from Britain with 13 battleships in pursuit. Bad weather hindered his operations and he had to abandon an attempt to attack d'Estaing in Boston. Byron took advantage of the winter to take troops to seize St Lucia. D'Estaing followed, but failed to retake the island. He wintered in Martinique, taking St Vincent and Grenada, and refused to be drawn into a battle with Byron. Early in 1779, d'Estaing went north to assist in the American attack upon Savannah, but this too failed and he returned to France.

This comprehensive failure could have been disastrous for France. Nothing significant had been achieved and British naval resources were growing faster than those of France. A campaign in the Western Approaches had led to an indecisive battle off Ushant on 27 July 1778. D'Orvilliers, critically outnumbered in the powerful three-deckers, wanted to avoid a battle which he was unable to do. As in other battles earlier in the century, the British took advantage of this reluctance and pursued, threatening doubling the rear of the French line, but this time d'Orvilliers was not so inferior in number or quality not to resist the attempt. He managed to extricate his fleet by preserving generally good order against the British who were disordered by their pursuit, and after a sharp clash, both fleets retired to repair. Vergennes was relieved at d'Orvilliers' return, but he could not look to 1779 with confidence unless Spain joined the alliance. The French position in India had all but collapsed with the capture of Chandanagore by Warren Hastings. Vergennes' determined efforts to bring in Spain were rewarded when the Convention of Aranjuez was signed on 12 April 1779. Spanish resources were now added to France and war in Europe.

During 1779, naval events focused upon Europe. Gibraltar was besieged by the Spaniards. The attacks on commerce and the British attempts to intercept the trade of her enemies lead to worsening relations with neutral powers. Since 1778, France had encouraged Sweden to co-ordinate an armed neutrality against Britain. Russia, which Britain had been wooing in the hope of an alliance in order to use her fleet, established a coastal patrol to protect her commerce. The Netherlands and the Danes were pressing Britain.[60] Worst of all for Britain was the attempted invasion of that year. Rather than try to control the Channel and land in the South East, the Bourbon powers agreed to focus their invasion on Plymouth or Portsmouth. The plan was to land a French army of 25,000 troops from Normandy under cover of the combined Franco-Spanish fleets. By August, the Bourbons managed to assemble a force of 66 battleships, the largest combined fleet they had managed to put together that century. It was an imposing force, opposed by Sir Charles Hardy's 38 battleships. However, the combined fleet was in poor condition. Sickness had been growing since June. Victuals were poor and running short. According to the French, the operational condition of the Spanish ships was very poor. The Spaniards had not been given copies of the French signals that d'Orvilliers intended to use. Hardy heard of the combined fleet's approach off the Scillies and withdrew slowly up to Spithead by 3 September. In Britain the ministry was facing a crisis, but at sea d'Orvilliers was facing serious problems. On 16 August he was ordered to abandon the Portsmouth/Isle of Wight plans and be prepared to cover landings at Falmouth in Cornwall. He was to maintain this position until November,

so the allies retained control over both sides of the Channel approaches. D'Orvilliers' reply pointed out that his fleet was in no condition to fight a battle, let alone survive at sea into the winter. By early September he decided to return to Brest, and on 3 October the invasion plan was abandoned.

The fate of this operation shows that the fundamental problem of seapower had not been resolved by the Bourbons. However, they had, and continued to have, an impressive array of battleships and together they significantly outnumbered the British (see Table 9.1).

By 1785, the Bourbon advantage had been whittled away by a vigorous building programme of "64s" and "74s" in private merchant yards, leaving the royal yards free to build the three-deckers and to refit and repair existing vessels. However, even at its height, the Bourbon advantage was nothing like the figures suggest. The basic infrastructure was missing for sustained operations by the combined allied fleets. They lacked seamen, victuals and stores to ensure a regular replacement of losses to maintain a powerful combined fleet at sea for any length of time. France had always had difficulty co-ordinating resources from different ports on the Ponant, and the problem was far worse when this co-ordination had to be extended to Spain. There was little agreement on how to use the combined fleet, so that it remained almost immobile at Cadiz throughout 1780.[61] However, France was much better placed than it had ever been to pursue the "indirect" strategy of the late 1740s and send out powerful expeditionary squadrons. With good fortune and timing, its forces could be large enough to tip the regional balance of power almost anywhere in the world. From 1779, this was the policy France pursued. Not only were the forces large, but attrition had not yet taken a toll on

Table 9.1 The balance of naval forces, 1775–1785

	British battleships	French/Spanish battleships
1775	106 (244,000t)	119 (306,000t)
1780	103 (234,000t)	126 (337,000t)
1785	121 (282,000t)	118 (331,000t)

Source: J. Glete, *Navies and nations. Warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1992), vol. 1, p. 276. The numbers of battleships exclude 50-gun ships, which by this time were too small to stand in line of battle, despite being counted as battleships by all nations except Britain. I am grateful to Dr Glete for providing me with the numbers from his unpublished research files.

the trained seamen and, during the peace, the officer corps had developed a more professional approach to manoeuvre, signals and battle than ever before.

The British, on the other hand, might have developed a blockade strategy similar to that in the Seven Years War, but a comparison of the situations is fraught with difficulty. In the Seven Years War, Britain had a distinct numerical superiority in warships and only had to blockade France. It was also known that France had little regional support in the Americas if a squadron escaped. Britain had substantial support there and could be sure of outnumbering and outperforming an exhausted French squadron. In 1780 this was very different. The Bourbons had more ships and Spain needed to be blockaded as well. Both France and Spain had significant supporting facilities in America which easily matched those of Britain. Although it is undoubtedly true that to blockade or intercept an enemy close to their point of departure is far better than trying to follow them around the world, it was a strategy that had distinct dangers in the early 1780s. There was little reason to think that the wind and weather would not permit the Bourbon squadrons to escape at some point. To permit them to operate with an unchallenged superiority in the Americas endangered the West Indies and the army in America. The Royal Navy may have pursued, caught and defeated the enemy squadrons, thus ending the danger. It tried to do this, but the results were at first less dramatic than in the Seven Years War. While the privateering war continued, and the diplomatic disputes with neutrals evolved into a hostile League of Armed Neutrality in 1780 and even war with the United Provinces in December 1780, the advantages and disadvantages of particular strategy remained ambiguous.

The global war: the British in crisis 1780–1

During 1780, neither side could concentrate a decisive force at sea, but it was the British who generally maintained the initiative. Vice Admiral Rodney intercepted a supply convoy to Cadiz in January 1780, capturing seven Spanish warships and a dozen supply vessels. The victory was again the result of a pursuit. A few days later, in another pursuit of 11 Spanish line, he captured six and another vessel exploded. However, his attempts in the West Indies during April and May 1780 to bring the French fleet under de Guichen to decisive action failed. De Guichen's larger fleet formed a line and successfully manoeuvred to leeward, avoiding Rodney's attempts to cut off parts of the line or bring on a general engagement. A small Spanish force of six ships and two frigates under the command of Don José Solano evaded the British in the Leewards and

got to Havana on 4 August 1779, from where he supported the Governor of Louisiana, Bernardo de Galvez's successful attack upon Mobile (14 March 1780) and Pensacola (9 May 1781).[62] In North America, Vice Admiral Marriot Arbuthnot co-operated with General Clinton to take Charleston in May 1780. However, his order that Newport be abandoned to concentrate forces at Halifax enabled a small French squadron to occupy the port in July. In March 1781, Arbuthnot managed to prevent the French from Newport getting into the Chesapeake to reinforce the American forces in Virginia. On his return to New York, Arbuthnot was replaced by Rear Admiral Graves, who was about to be a major player in what has been considered as one of the most decisive naval events of the eighteenth century.

Early in 1781, the naval position was broadly satisfactory for Britain. American privateers continued to harass British trade, but the war against the Dutch had produced another flurry of British privateering. On the whole, although the numbers of prizes were rising, the overall productivity of privateering as an enterprise was not as great as in the Seven Years War. While productivity and possibly profitability of British and American privateering was falling, the numbers of privateers were still rising. The number of French and Spanish privateers at sea, however, continued to fall. Much more needs to be known about this phenomenon. The relationship between the strengthening of royal navies after 1763, changes in the broader maritime economy and the decline of privateering have not been explored in any detail. Whether powerful royal navies had squeezed the profitability of privateering, thus causing a decline, is unclear, but what is clear is that it was having a diminishing impact on seapower.

In March 1781, the Comte de Grasse left Brest for the West Indies with 26 battleships and arrived at Martinique on 24 April. Rodney had continued to exert control over neighbouring islands, taking the Dutch island of St Eustatius in February. In July, de Grasse left, as was usual, with the homeward trade for Saint Domingue and Rodney decided to return home. The next few weeks saw de Grasse take his squadron north to join that under Barrass from Newport at the mouth of the Chesapeake. There, they effectively blockaded the Earl of Cornwallis' army of 7,000 that had fallen back on Yorktown after a campaign in Virginia. As soon as Graves heard the news that the French were approaching he left New York and on 5 September 1781 fought an indecisive battle off the Capes. Graves retired to New York to repair and await reinforcements, but by the time he was ready to return, Cornwallis had surrendered. The details that surround this campaign and the subsequent political manoeuvrings of the interested parties are fascinating in themselves.[63] The battle of 5 September 1781, without a clear prospect of a rapid reversal, had made Cornwallis' position untenable. The news of the surrender

brought a final realization in London that the conquest of America was impossible, but worse could follow if France and Spain managed to move from defensive to offensive action. A relief convoy had got through to Gibraltar in April, but discipline on the island was beginning to suffer. A Spanish army had landed on Minorca in August and begun a siege that was to end in the surrender of the island in February 1782.[64] The one squadron action of the war between the British and Dutch occurred off Dogger Bank on 5 August 1781, when seven British and seven Dutch warships fought a bloody but indecisive action. The Dutch stayed in line, while the British ships bore down in a general chase and passed through the Dutch line. The Dutch had not been disordered and Vice Admiral Hyde Parker found it impossible to reform the line after passing through and the battle ended without much further fighting.

The war was demonstrating that despite a formal doctrine of the line of battle, British officers were interpreting it differently from their enemies. The Seven Years War had led to additional signals being added to the Fighting Instructions, which were broadly unchanged since 1704, to ensure that admirals could get their squadrons to bear down upon the enemy at an appropriate time and in some order. General chases continued to provide the British with the opportunity to isolate, destroy and capture enemy ships. Equally, close engagements could allow superior British forces to double or penetrate the enemy line. The Bourbons and the Dutch, on the other hand, now fighting with approximate parity in numbers, used the line to prevent such fragmentation and isolation. D'Orvilliers, de Guichen, de Ternay and de Grasse all succeeded. The Dutch admiral, Rear Admiral Zoutman, had failed. Evidently, the period, laced with defeat and disappointment for Britain, was also one in which overcoming the defensive power of the line became more important than ever before. After 1704, the British only really faced a line of battle of equal numbers and power once, in 1744. After this, the British fleet were fighting numerically inferior enemies who could not rely on the line to preserve them. This had changed by 1778 and dealing with the defensive power of the line was becoming a central feature of British naval thinking. The 1777 signal book consolidated many of the developments since the 1740s which enabled admirals to bring their ships into close combat with the enemy. Despite Vice Admiral Richard Kempenfelt's more innovative signal book which was used at Dogger Bank, the majority of fighting was conducted under the accumulated wisdom of the 1777 signal book, amended by each admiral as they saw necessary. In the enemy fleet, there appears to have been greater emphasis on preserving the line as a tactical defence. They could equal Britain in the number of ships and the quality of design, but their crews were usually less experienced and well trained. While Britain had lost her numerical superiority her

officers had got used to the idea that, ship for ship, they could outgun and outfight their enemies. French tacticians such as Bigot de Morogues recognized this, but too little time had elapsed to allow the French, Spaniards and Dutch to bring their professionalism and training up to British standards. Courage, determination and discipline had to make do instead–and a solid defensive line powerfully reinforced it.[65]

The global war: the British recovery, 1782–3

In the final acts of the war the strength of British naval infrastructure finally began to tell. British ships were leaving the yards faster than those of the French or Spaniards. The naval balance had been maintained in the West Indies, and the French plan was to attack Jamaica. De Grasse sailed with 35 line from Martinique on 8 April 1782, pursued by Rodney with 36 battleships. An indecisive action was fought on 9 April, but Rodney caught up with de Grasse again. There is some dispute over the battle that followed, but the British pierced the French line in three places, disordering them and exposing the French ships to raking fire. The British were able to claw back towards the enemy. Three "74s", a "64" and de Grasse's flagship the *Ville de Paris* (104) surrendered. Whether it was preconceived or a spontaneous reaction to an opportunity is a matter for debate, but from then on it was commonly understood that the breaching of the enemy line was the first, essential step to disordering the enemy fleet and isolating and destroying his battleships. This French defeat also ended the threat to Jamaica.[66]

In September 1782, the Spaniards made a final attack upon Gibraltar by battering ships and 44 battleships, which ended in failure. On 18 October, Howe's fleet of 34 battleships escorted a convoy of two battalions, stores and victuals into Gibraltar Bay. When Howe left he was pursued by the Spaniards, but the skirmish came to nothing and although the bombardment continued the garrison was in no serious danger before hostilities ended on 2 February 1783.[67]

The other region of significant naval action was the East Indies. Britain, by then a well established local military power, easily cleared the French out of their vulnerable posts on the mainland during 1778–9. The absence of a French threat and the ability of the Bomby Marine to deal with local maritime power meant that Britain could remove regular naval forces from the East Indies by May 1767, but they were gradually built up again from the middle of 1770 in response to information from France. Choiseul recognized that if France were to campaign effectively in India, she had to develop the

port facilities to sustain long-term operations and from the 1760s Mauritius had began to be developed as a naval base. The French crown took formal responsibility for trade to the east in 1769, when the Compagnie des Indes was dissolved. From 1770 until 1779 the situation in India remained stable with both Britain and France gradually matching each other's moves until each had about six battleships in the Indian Ocean–the former under Vice Admiral Sir Edward Hughes and the latter under the Comte d'Orves. However, in December 1780, the British declaration of war on the United Provinces threatened to change this. Mauritius drew much of its provisions from the Cape of Good Hope. Dutch assistance now made Mauritius a much more potentially secure base. French naval forces could shelter at the Cape to intercept the East India Company ships. Furthermore, the Dutch harbour of Trincomalee on Ceylon (Sri Lanka) could provide the French with a safe anchorage close to the Coromandel Coast of India. In March 1781, France despatched five battleships under the Ballie de Suffren with troops to support their ally Hyder Ali in southeast India against Britain. In April, at Porto Praya, Cape Verde Islands, Suffren disrupted an expeditionary force that the British had sent to take the Cape of Good Hope, but Hughes was alerted to the French reinforcements by ships that resumed their voyage after Suffren's attack. Hughes concentrated on seizing the valuable base of Trincomalee, which would give him a secure station on the Coromandel Coast during the monsoon season.

D'Orves had died shortly after Suffren arrived at Mauritius and soon Suffren commenced a campaign that was to leave him with an outstanding and controversial reputation. In five actions against Hughes during 1782–3, Suffren showed unusual invention and energy. While his colleagues focused on the line of battle to compensate for the weaknesses of subordinate officers, Suffren was willing to act aggressively and attempt to achieve a local superior concentration of firepower upon the enemy ships. To some Suffren's campaigns of 1782–3 were among the first concerted attempts to focus on breaking the enemy's line of battle. To others it was a reflection of a contemporary general pattern of tactical thinking, particularly in Britain. The battles did not yield the results Suffren wanted and he was not slow to blame his subordinates for the overall failure of his plans. His colleagues were, perhaps, right, when faced by superior British naval forces, to concentrate upon maintaining the discipline of line as the individual French officers and crews were not yet up to the task of shiphandling and fighting in such a confused situation. Suffren has been praised for his energies in improvising repairs locally rather than relying upon Mauritius and in getting to sea faster than Hughes, but it has also been emphasized that Hughes had no advantage in repairs on the Indian coast, despite the apparent distance to Suffren's main base. Suffren's successes

enabled him to support Hyder Ali's recapture of Cuddalore in April 1782 and the recapture of Trincomalee from the British in July. In June 1783, his final action with Hughes drove the British away from their forces besieging Cuddalore and the town was saved. The news of peace ended hostilities before anything else happened.[68] Suffren's achievements were limited by the treaty which abandoned French claims to territory on the Indian mainland, but his reputation as an aggressive naval commander survived. Aggressive he undoubtedly was in comparison to his colleagues in the Atlantic and West Indies, but whether he deserves the reputation he has achieved is still open to question. Seapower may have played a far lesser role in the East Indies than in the Americas. Indian land powers were influenced by many forms of diplomacy, of which seapower was but one. The Atlantic states' seapower now extended firmly into the Indian Ocean, but its relationship with Indian land power needs to be much more fully explored, particularly from the Indian perspective if a complete picture of the campaign in the Indian Ocean is to be established.[69]

The global war: conclusions

The peace preliminaries were completed on 20 January 1783. The Treaty of Versailles (3 September 1783) recognized the independence of the United States, within defined territorial boundaries. Rights to fishing in Newfoundland waters were conceded. France obtained similar rights and the islands of St Pierre and Miquelon. In the West Indies, France received St Lucia and Tobago. In Africa, Senegal and Gorée were returned, as were their trading posts on the Indian mainland. The irritating disputes over the fortifications of Dunkirk were also buried. Spain received Minorca and East Florida. Britain had her claim to Dominica, Grenada, St Vincent, St Christopher, Nevis and Montserrat confirmed, as well as logwood cutting rights in Honduras. Fort James on the Gambia was also confirmed as British.

The war was undoubtedly a major defeat for Britain and a reaction to the expenditure set in during 1780, long before Lord North's ministry fell early in 1782. As the dust settled, what did the world make of seapower, which seemed to have raised Britain so high and then laid her low in such a short time?

Whatever the fortunes of the land campaigns, each combatant could claim that their naval power had been a success. Despite de Grasse's defeat in April 1782, the French officer corps now saw itself as a successful professional force. However, de Grasse's attempts to vindicate himself and make the officer corps a more exclusive body tied by

bonds of loyalty to the fleet commander failed. The need to expand the corps militated against such exclusive professionalization.[70] The Spanish navy achieved a number of successes against the British, particularly in the Gulf of Mexico. British fortunes had been restored by Rodney and the navy after the débâcle of 1781. The three European crowns saw this naval power in terms of their battlefleets. Despite enquiries and economies elsewhere in the budget, the British Royal Navy enjoyed unprecedented public support. The navy was reduced to a peacetime level, but for the next ten years, the Royal Navy was maintained and a modest building programme preserved. France and Spain also continued to maintain their battleships and expand the numbers of three-deckers.

Seapower was now, evidently, perceived as a critical element in contemporary diplomacy. Assuming a Bourbon alliance, the Atlantic powers were now more evenly balanced than at any time since 1697. The British had outbuilt the Bourbons in the long run, and what Britain might have been able to achieve had the war continued is impossible to tell, but the American war raises a number of important questions about the battlefleet. This was the only war of the eighteenth century in which France was able to sustain a battlefleet campaign over five years. Although lacking the crucial three-deckers, France, with Spain, had achieved a rough parity with Britain. The operational capability of the Bourbons could not yet match the British and they seldom sought battle which put that parity at risk. However, their equality of numbers in any given squadron meant that they could more confidently form a defensive battleline. The chase actions which had brought Britain victory since the late 1740s were less common and the British were faced with powerful defensive formations. Battles were, therefore, generally indecisive, but British attempts to break the line and replicate their triumphs of earlier decades were apparent from 1779. In these conditions of numerical parity and a tactical discipline which favoured defence, technological advantages may have begun to play an important part in the balance of seapower. In 1779, the Royal Navy introduced the carronade, a short-barrelled cannon which threw a heavy ball. Its high velocity at close range gave it exceptional penetrating power and it became known as the "Smasher". These powerful guns dissuaded the French from approaching to close quarters and may have played an important part in de Grasse's critical decision not to close with the van of Rodney's squadron, under the command of Vice Admiral Samuel Hood, when he was isolated from Rodney by the winds off Dominica on 9 April 1782. If de Grasse had crushed Hood, the decisive battle of 12 April may never have taken place.[71] Rodney also had with him an expert in gunnery, Captain Sir Charles Douglas, whose work on cannon traverse, flintlock firing mechanisms and tin primer boxes increased the advantage the British already enjoyed in gunnery.[72] An important factor in Rodney's victory on

12 April may have been the copper sheathing of his ships. After many trials, copper was found to be a practicable means of protecting the hulls of ships from marine growth and fouling. Up to this point, the British, who kept their ships at sea for longer periods, could almost always find that the clean French ships were faster and could therefore avoid battle if they wished. Rodney's squadron was coppered by the end of 1781. One of the critical factors on 12 April was the ability of Rodney's ships to reform and attack once the French line had been broken. Superior seamanship and coppering made this possible.[73] Technological advantage is seldom long-lasting between societies which are broadly culturally and economically similar. However, it seems that it may play an important, if temporary, role when other factors in power relations are fairly equal.

This war was the only war between European states that was predominantly determined by seapower and it was only a short while before Europe was embroiled in the crisis and war which lasted from 1792 to 1815. Seapower was to play a role in these wars, but do the events of the 1775–83 war provide any clues to how seapower had developed? There is a common assumption that the battleship and the battlefleet were the foundation of all naval power in the period after 1650. The battlefleet provided the naval force that protected the operations of privateers, small warships, transports and amphibious forces. There is much to suggest that this relationship existed. French privateering gradually declined under British naval dominance between 1700 and 1763. British privateering and amphibious operations expanded in the same period. However, establishing a causal relationship is much more difficult.

So far as privateering was concerned, French privateering showed a continuous decline during the eighteenth century, regardless of the power of the battlefleet. American privateering flourished in alliance with the British fleet and against it. British privateering grew to a peak between 1778 and 1783, despite the reduction in the domination of the Royal Navy over the world's oceans. The relationship between battlefleets and privateering is not at all clear. The late nineteenth-century debates presented them as mutually competing state strategies–a choice between battlefleets or commerce raiding, battleships or torpedo boats. After the submarine campaigns of 1915 and 1917 the parallels seemed even more compelling. To the French in particular, it appeared that they faced the same choice as Louis XIV had faced in 1692–5. To the battleship proponents, the decline of privateering over the eighteenth century and the failure of the submarine campaigns were proof of the fallacy of the commerce-raiding strategy. However, this attractive analogy misrepresents the dynamics of eighteenth-century privateering. Louis was won over to the *guerre de course*, but for most of the century it was not a state-directed activity but one that was

founded in the maritime economy. The factors influencing success or failure were much more complex than a simple relationship to friendly or hostile battlefleets. Much more work needs to be done on eighteenth-century privateering in Europe and America before a clear picture will emerge. The twin factors, profitability and risk, were tied up with so many variables other than battlefleets, such as the markets for prizes, alternative employment, the sophistication of merchants in using neutrals, stockpiling or using alternative sources of supply, the legal framework for condemnation of prizes, collusion with other powers, and the activities of enemy cruisers and privateers. The British success in limiting the ravages of enemy privateers in the next war was due to its legal and political support for privateering and trade protection as much as it was to the battlefleet.

Privateering was a significant, but slowly diminishing, part of seapower throughout this period. After 1696, there is no evidence that seapower, let alone privateering, could exercise a decisive economic influence over the outcome of wars. Although maritime commerce played an increasing and high-profile role in Western European economies, the basis of wealth was still agriculture. From the sixteenth century convoys protected the valuable trades and after 1650 battlefleets patrolled the maritime chokepoints. After 1700, the expansion and diversification of trade made it impossible for captures by privateers or warships to reach a critical mass that would shatter an economy. The extension of convoys also prevented privateers from having a major impact on the disruption of stores and victuals going to armies overseas. After 1713, it was clear that privateering could not win a war, but it could impose high costs upon an enemy in the form of disruption and insurance. It provided work for seamen and ships in disrupted trades. It hit confidence and had an impact upon strategy. It imposed a regular drain on shipping and forced states to disrupt their normal trading patterns. The reasons for its decline do not lie in its strategic ineffectiveness nor in battlefleets, but in a range of variables that have yet to be disentangled.

Amphibious operations have a much clearer relationship to the dominance of a battlefleet. These operations depended upon concentrations of shipping, which had to be protected by battle squadrons. The relative weakness of the French fleet forced France to plan amphibious operations in 1744, 1746 and 1759 that were complex and fraught with difficulties. The parity of battlefleet power in the war of 1778–83 enabled her to mount simpler and more effective operations. Battlefleet protection meant not only safety at sea, but assistance ashore. Seamen regularly brought up stores from ships and manned siege batteries. The fleet also provided cannons from the warships.

The battlefleet was an important aspect of seapower, but it remained only the foundation upon which much else rested in a defensive context. This had not changed since the middle of the seventeenth century. Battlefleets could interdict enemy concentrations of shipping, but they did not have the capacity to project power far ashore without substantial land forces. They made possible British resistance to rebellion and attack, but it was the disappearance of a prepreponderance of land forces more than the loss of superiority at sea that was critical to Britain in the Americas between 1775 and 1783. Battlefleets could not blockade the mass of enemy trade. Battlefleets were still regional, dependent upon local maritime resources to support them. They were fragile, heavy consumers of scarce resources, expensive capital products that took years to replace. The important change was not just in the battlefleet but the rising number of the states' small ships which gave seapower a state-controlled attacking edge. Between 1750 and 1760, the number of British cruisers increased by 69 per cent, and in the Seven Years War British domination of the French coast after 1758 was based upon this combination of battlefleet and cruising ships. After 1778, Britain's dominance declined (see Table 9.2).

These vessels provided the escorts that defended trade and attacked enemy merchants and privateers. They operated up rivers and in coastal shallows, provided the in-shore support to amphibious landings and covered retreats. They provided a versatility to seapower which went beyond the services traditionally provided by privateers. They had limited endurance and firepower. It is doubtful if they relied upon the battlefleet, but in conjunction with the firepower and storage capacity of a battlefleet, they could ravage enemy coastlines at will.

The War of American Independence is seen by Mahan as a classic maritime war. For him it highlighted strategic and tactical failures on all sides that were put right in the Revolutionary and Napoleonic Wars.[74] Mahan presents the war too much as a clash of

Table 9.2 Comparative cruiser strength, 1770–85

	1770	1775	1780	1785
Britain	76	82	111	133
France	35	37	58	57
Spain	21	28	34	37
United Provinces			40	
Ratio Britain:Allies	1.36:1	1.26:1	0.84:1	1.37:1

Source: J. Glete, *Navies and nations. Warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1992), vol. 2, pp. 553, 578–9, 630, 641.

nations who were aware of the power and potential of their fleets. The Spanish and French were coming to terms with a quantitative parity with their enemy and had made significant qualitative advances, but they were inexperienced and unwilling to risk these achievements in a battlefleet war that Mahan envisaged. For the British it was initially a civil war and naval policy was confused from the late 1760s. The timing of mobilization was disjointed and the objectives of the war from 1778 ambiguous. Establishing how seapower and naval force fitted into this war was a lengthy process, not an established doctrine. At the end of the war Britain still possessed tremendous naval advantages. She retained her regional bases in Halifax and the West Indies as well as having developed her home bases. Financial support was secure. The quarrels among the officer corps are the most well known features of the war, but they continued to share an aggressive culture that aimed at decisive victory over the enemy. The amendments to signals and the disputes arising over disappointments and victories were the most obvious signs of this. Technical and organizational advances on board ships made British warships extremely effective fighting units.

Chapter Ten

Seapower and global hegemony, 1789–1830

Within ten years of the end of the American war another global war broke out. The intervening years were marked by more extensive maritime competition than ever before. In the decade before 1793, many states expanded and improved their navies. Yet, by 1815 there was only one global navy–the British Royal Navy. In every war since 1688, the British navy increased its advantages, either in numbers or quality, over its rivals. In 1815, the advantage was so dramatic that Britain was unchallenged at sea until the 1840s, and unthreatened until the 1860s. By then, the wooden sailing ships armed with round-shot firing cannons were being replaced by steam-powered ironclads with shell guns. Between 1793 and 1815 Britain achieved a maritime hegemony that had a powerful influence on world diplomacy until after 1918. More than any other war, the French Revolutionary (1792–1802) and Napoleonic (1803–15) Wars seemed to epitomize the significance of the battlefleet and symbolize the magnitude of seapower. The "Nelson legend", the victories of the Glorious First of June, St Vincent, Camperdown, the Nile and Trafalgar, the crises, the apparent closeness of defeat and invasion juxtaposed with the eventual defeat of Napoleon, the growing world domination of British manufactures and the consolidation of a British empire in the east entwined cause and effect, emotion and material progress in a powerful yet obtuse manner. Seapower seemed to have become the decisive world force. In a world of highly competitive nation-states, contesting land power exhausted all the rivals. Seapower gave access to the more vulnerable parts of the world and seemed to enrich the holders. The wars of 1793–1815 are, therefore, critical to how the history of seapower under sail has been interpreted. However, the events of this period still raise as many questions as they answer.

1783–93: the apogee of naval competition

For a number of years after 1783, ships laid down in during the American war were coming off British slipways. Over 270,000 tons of naval shipping was launched in Britain between 1780 and 1785. By the latter date, Britain had 137 battleships and 133 cruising warships available–far more than could be maintained on a peacetime establishment. This expansion was testimony to the fundamental strength of the maritime and naval establishment. The war had been a defeat and questions were asked about its conduct, but there was a general political consensus that the maintenance of a navy capable of dealing with its next two rivals together ("the two-power standard") was necessary. William Pitt was able to maintain the naval budget at levels broadly needed by the Navy Board for a continuous programme of repair. He also succeeded, in 1786, in repaying the Naval Debt incurred up to the year 1783. That the navy was seen as an instrument of the diplomatic offensive was also accepted. The opposition began to question the budgets more closely after 1787, but Pitt was still able to obtain the extraordinary expenses needed to equip the fleet for warlike demonstrations against Spain in 1790 over Nootka Sound and Russia in 1791 over Ochakov. By 1793, the Royal Navy had over 100 battleships and 115 frigates in good repair and easily prepared for action.[1]

The war had exposed problems in the dockyards. Smaller warships were built in private yards and although completion dates had not been met and the Navy Board disliked relying on them, it was clear that in a crisis the private builders were an indispensable part of the maritime infrastructure. The French copied the use of private builders for frigates from 1778 to 1782, but neither France nor Spain managed to integrate their private shipbuilding capacity with the state's needs as Britain did.[2] They released the royal yards to build the largest warships and concentrate on repairs. Even so, they had been stretched by the demands of the war. Shortages of artificers, seamen and space all caused problems.[3] The tensions that this exposed in the management of the yards was noticed by contemporaries and raised political questions which with modern eyes could be seen as elementary organizational inadequacies. This was a period when the concept of public service was being forged in Britain and the associated ideas of corruption and efficiency were being redefined. The question of how far reform could be adequately identified and the conditions which would permit those changes still needs to be answered before any judgement can be made about the effectiveness of the politicians and naval administrators of the period.[4]

The ships had performed adequately, but there was still a feeling that French designs were superior. Anxiety about inferior design dogged British warship building since

1739 and continued until 1815. Given the emphasis that is often placed upon technology and design in explaining military events, this is an interesting phenomenon. British success indicates that other factors may have overcome design weaknesses, but recent research also suggests that it is dangerous to place too much confidence in contemporary theories of design. During the whole of this period, the critical difference lay in the handling of the ship by experienced crews.[5]

Nevertheless, incremental technological improvements were increasing the power of navies. There was a return to the large three-decker of 100 guns or more. They were much bigger than their counterparts of the 1690s, but improvements in sail plans and hull structure enabled these large warships to make extended cruises in most weathers. Throughout Europe, there was a general growth in the size and burthen of other battleships as well. The experience and demands of the American war probably began a process of significant changes in ship design which culminated in the early 1800s. The line of battle, which had dominated battleship design since the 1650s, was less relevant to a war against large, fast cruising battleships. The increasing focus on breaking through the formal line of battle apparent in British tactics changed the pattern of battle damage on ships. The limits of wooden ship dimensions were pushed in the drive for powerful, robust and durable warships and attention was turned to strengthen the vulnerable stern and stem. These factors led, after 1815, to the last generation of sailing battleships and frigates–powerfully built, fast and heavily armed.[6]

While the British Royal Navy was large, well-maintained, with a capacity for rapid expansion that outstripped any of its rivals, it carried two fundamental weaknesses. The problems of manning and timber supplies had not been solved. The problems were, of course, relative to expectations. Britain never suffered the absolute shortage of seamen and timber experienced by her enemies and the administration broadly maintained adequate supplies of both during the war, but British ambitions at sea far exceeded her enemies and the problems appeared far greater. Like the management problems in the dockyards, these pressures led to political and administrative crises and to solutions which were, possibly, as effective as contemporary administrative practice could achieve.

A further aspect of naval strength lay in the development of tactical doctrine and with the officer corps. The American war had seen quarrels and misunderstandings between officers, but it was also a period of experimentation in signals as commanders tried to achieve the decisive tactical results that had become common against Bourbon naval power between 1747 and 1763. This experimentation and debate continued throughout the 1780s. The main purpose of the signals and instructions was to close with the enemy and prevent his escape and much ink was spilled, subsequently, in claims and counter-claims regarding the origin of the ideas. However, by 1790, Lord Howe,

the commander-in-chief, completed a signalling system, based on a numerical code, which served the navy until 1816. During the French Revolutionary War (1793–1802) senior British officers added to Howe's signals and in 1799 the Admiralty published its first unified fighting and signalling instructions. The line of battle still had a real purpose, but more attention was paid to ensuring the enemy was brought to, and held in, close action. British officers were sure that with reasonably equal lines of battle their crews would outsail and outgun the enemy, thus tactical doctrine was evolving to emphasize the offensive, preventing an enemy in a leeward position avoiding combat.[7]

The British navy was also unique in its capacity for expansion. The mobilization of the fleet during the Dutch crisis of 1787, met with a very weak response from France. France was forced to back down against British and Prussian intervention on behalf of the House of Orange. In 1790, there was a smooth naval mobilization which compelled Spain to concede to British claims to the northwest coast of North America. Seapower was, however, only one factor in diplomatic calculations, and its influence and effectiveness could be overestimated. In 1791 British fears of Russian control of the mouth of the Bug and Dniester rivers and its impact on the Baltic naval stores trade led to a tangled diplomatic threat to Russia in alliance with Prussia. Fortunately, the British government drew back before a full mobilization took place, but the ministry lost a great deal of prestige and domestic political credibility. Seapower had very distinct limits, but the British government had no reason to doubt that, despite the growth of other navies, they still possessed the paramount naval force in the world.[8]

The Dutch navy experienced remarkable growth in response to the war with Britain (1780–4). Almost a new battlefleet emerged from the crisis, and with it some important administrative reforms. A Secret Committee of Naval Affairs was formed in 1782 to advise William V, which later became a more fully developed Department of the Navy. The five separate Admiralties withstood demands for their abolition, but the standardization of procedures began and there was renewed interest in educating the officer corps. It was a short-lived renaissance. The fleet blockaded the Schledt for a short period in 1784 during a dispute with Austria, but the political crisis of 1787 split the officer corps. It had hardly recovered when the war with Revolutionary France broke out in February 1793. The fleet was ready to work with the British navy and played a part in defending the river lines, but in January 1795 a large part of the Dutch fleet fell into French hands while ice-bound. From then on, until 1813, the Dutch fleet was an important part of French naval resources. Under the Batavian Republic (1795–1806), the Bonapartist Kingdom of Holland (1806–10) and as a department of France (1810–

13), the reforms continued. By 1800, a uniform set of regulations and standards was applied throughout the navy, but financial crises and a continuing split within the officer corps weakened the fleet.[9]

The French navy emerged from the American war with a renewed self-confidence. Louis XVI had no intention of letting this new-found power slip. Building continued at a remarkable pace for peacetime, 28 battleships and 23 frigates were built between 1783 and 1789. Even after the Revolution the pace was kept up–25 battleships and 22 frigates were added to the fleet, so that by the time war with Britain broke out in February 1793, the French navy had reached its eighteenth-century apogee in terms of tonnage–73 battleships (230,700 tons) and 64 frigates (73,000 tons).[10] The new battleships were built to more standardized designs that were thought to represent the optimum of firepower and seaworthiness, carrying 118,80 and 74 cannons. They were coppered, armed with carronades and technically equal to any ships in the world. Further reforms were intended to build upon organizational improvements. The Minister of Marine, the Comte de Castries (1781–6), continued the reform of the officer corps. In 1786, the highly exclusive officer-training body, the *gardes*, were finally abolished and a more inclusive means of recruiting officers from the social elites through schools at Vannes and Alais was formally established. The reforms incorporated in the *Code Castries* of January 1786, made some improvements to the working practices in the dockyards and the employment of seamen, while formally organizing the fleet into nine permanent squadrons. The deficiency in gunnery was tackled by establishing a special corps of seamen-gunners.[11]

The building and reform programme, however, masked serious structural problems. France never possessed adequate resources to sustain such an ambitious naval programme. Demographically, she had no greater reserve of trained seamen than at the beginning of the century, while the demand for skilled seamen to handle the more sophisticated sail plan of the ships had increased as much as 50 per cent. France was also bankrupt and the long-term maintenance of the fleet was doubtful. Her administration had not solved the basic financial problem nor had it successfully addressed the long-term supply process for timber and iron at the ports. By 1786, the Treasurer of the Navy, Baudard de Ste-James, was bankrupt and there was no possibility of mobilizing the fleet during the Dutch crisis of 1787. The royal government had only begun to address some of the fundamental financial problems in 1788 when it consolidated all the departmental treasuries into one Royal Treasury in March and created a new Département de Marine in June.[12]

If the prospects for the French navy fighting a successful naval war against Britain were poor, the Revolution was a catastrophe. The long-term health of the navy depended

upon a stable administration of the ports, supply networks and finance. They were all extremely fragile before the Revolution, but the tensions building up in the reform process shattered the administrative environment. There was a clash between the port authorities and the new local civil authority at Toulon in December 1789. The port commandant was arrested and the failure of the crown to obtain his release and the support of the National Assembly for the civil powers was a signal of the collapse of royal authority in the yards. In April 1790, the administration of the *inscription maritime* was placed in the hands of syndics elected by the seamen, and in June 1790 the National Assembly declared its right to approve naval estimates, conditions for promotions and even the purpose of the fleet, which, it determined, was to protect trade. This confusion of purpose and control was combined with further expectations from the seamen concerning their rights and the role of popular sovereignty in the new governmental system. Mutiny broke out in Brest in September 1790 which rumbled on throughout the ports and on ships during the early 1790s, culminating in September 1793 when the Brest squadron was forced back to port from its position in Quiberon Bay by a mutiny among the seamen. The officer corps had little faith in the central government and no clarity about its own authority. By October 1791, 80 per cent of the officer corps was absent from the fleet. The old officer corps was, in practice, shattered by the end of 1792. The central administration was confused. There were five Ministers of Marine between October 1790 and March 1792. Although some stability was achieved under the Convention and the rule of the Committees (1792–4), and although ministerial bureaucracy began to reform, it took time to consolidate under the Directory (1795–9).[13]

The impact of this prolonged governmental crisis is still a matter of debate. To some historians, such as Mahan and Joseph Martray, the Revolution destroyed a bright future of a revived French royal navy. To others like Norman Hampson, it was the failure of the Revolution, not its success, that brought defeat to the French navy. Still others think that the navy struggled effectively to develop itself in the new power system until destroyed by Nelson at Aboukir Bay on 1 August 1798, while to some the revolution was irrelevant–the French navy was simply too far behind Britain to have stood a chance of winning a naval war in the 1790s. Yet others argue that naval war was largely irrelevant as the war was fought, won or lost on the continent.[14] There is no easy answer to this question. The war was unlike its predecessors. It was an ideological war, and one that threw up conflicts across Europe and the world. It gave seapower an exceptional role in providing opportunities for intervention right across the peripheries of European states' interests. At the same time it demonstrated the limitations of seapower against the

organized French revolutionary and imperial armies. Britain was thrown into crisis and, interestingly, while the undisputed paramount global naval power, was forced to build even more ships, stretching its labour and timber resources to the limit. The French navy was significantly weaker in infrastructure and professional capability than the British navy in 1789 and the political events of 1789 onwards weakened it much further, but its impact on the course of the wars to 1815 still deserves attention.

During this period other navies continued to grow. The Spanish navy reached the apogee of its size and power. Between 1783 and 1793 60,000 tons of warships were launched, including eight of the big three-deck battleships. However, the 1790s also witnessed Spain's naval collapse. The last battleship to be built in Spain for over 50 years, the *Argonauta* (80), was launched in 1798. The ships built in the preceding decade maintained a fighting fleet in being, but a fundamental lack of seamen, attrition at sea, war on land and economic collapse had overtaken the navy.[15] The two other navies that saw significant growth in this period were the Turkish and United States navies. With very different problems, resources and traditions, they developed in very different ways. After the defeat at Chesme in 1770, the Ottomans had begun rebuilding their fleets using the expertise of foreign, particularly French, shipwrights. The new battleships were larger and better designed and constructed than they had ever been. The Ottoman naval reforms of pay, promotions, captains' responsibilities, recruitment of seamen, the work of the arsenals and training during the 1790s were some of the most comprehensive in the period. Further reorganization in 1804–5 continued to develop the navy and created a fleet which kept the Russians at bay in the Black Sea during the war of 1806–11.[16]

The United States navy was a new force which owed a great deal to the origins of the state itself. Founded on the principles of representative democracy, the constitutional debates of the 1780s provide an interesting insight into how congressional representatives viewed their new navy. The navy took shape in the Navy Acts of 1794 and 1796. It had to be consistent with republican virtues. It was a force to defend the interests of the people, principally trading interests. It was not intended as a standing force, but one to be mobilized when needed. Command above the rank of captain was distrusted as carrying with it the seeds of a professional hierarchy. Likewise, although the ships had to be built in America and the officers had to be American citizens, a supporting infrastructure of protected forests or naval yards was rejected for the fear of professionalization.[17] The navy that emerged from the debates and legislation consisted of six powerful frigates (three "44s" and three "36s") that were intended to protect important Mediterranean trading interests against Barbary corsairs and other traders

from French or British privateers. The debates over the navy remained polarized between the "navalists" who saw the navy as an essential instrument of diplomacy and the "anti-navalists" who saw it as a weapon which would embroil the United States in war with one or other European power. In between, the mass of representatives could be swayed to either side. Tension with French West Indian privateers gradually pushed the balance towards the "navalists" and their success reached an important point in March 1798 with the "X, Y, Z Affair". Congress voted to have sight of diplomatic papers which showed that France was not negotiating a resolution to the privateer issue in earnest. Senate voted funds to increase the number of ships and effectively man them. Most importantly, an act was passed creating a Navy Department, thus permanently establishing the navy. Almost as important was the appointment of Benjamin Stoddert as the first Secretary of the Navy. Stoddert was a capable and conscientious administrator with a good grasp of strategy. He was soon faced with a war with France largely in American waters (the Quasi-War of 1798–1801). The navy consisted of frigates, sloops and galleys, too few to do all that was required of it, but by the end of 1800 the war had been a success. Navalists played up the success to demand a battleship navy, but there was a clear discrepancy between the arguments for battleships and the successes that had been achieved by frigates and sloops. The failures were too often due to a lack of suitable small ships, not battleships. Policy swung wildly from the approval of six battleships in 1799 to the election of an "anti-navalist" president, Thomas Jefferson, at the end of the year. For the next 16 years policy swung from frigates to gunboats to approval of a battleship in 1815, influenced by domestic political as well as naval events. In no other country was the navy and seapower such an issue of political debate, a debate played out against the background of the most intensive war the world had seen up to that date.[18]

1793–6

War in Europe had broken out in April 1792, but it did not become a maritime war until the Republican Convention declared war on Britain and the United Provinces on 1 February 1793 and Spain on 7 March. The Republic had weathered the first onslaught by Austria and Prussia, and its advance into the Austrian Netherlands posed a threat to Britain and the Dutch. Troops were rapidly despatched to defend the Low Countries. Whereas the revolutionary armies startled the world by their flexibility, elan and success, the French navy was not similarly capable. The ability of the army officer corps to draw upon the provincial nobility with military experience for senior command and

experienced non-commissioned officers for junior posts was not replicated in the navy. Nor was the *levée en masse* a practicable means of manning an ocean-going fleet. In the French army the revolution forged a unity between the reformed officer corps and the army which did not happen in the navy. Hostility and suspicion between seamen and naval officers were intense when the French navy found itself faced by the combined naval might of Britain, Holland and Spain.[19]

The unusual nature of the war quickly became apparent. The unprecedented prosperity of the French seaports collapsed rapidly as the allies intercepted trade, but it was events in Toulon that caused surprise. The civil authorities in Toulon invited the allies into the town after rising in revolt against the Jacobin coup of June 1793. The commanders of the Toulon squadron were thrown into disarray by this turn of events, which faced them with surrender or firing on the Toulonnais. In the event, Vice Admiral Viscount Hood entered Toulon with a Spanish landing force in August 1793 without a shot and the Toulon squadron of 31 line fell into allied hands. The occupation was short, as revolutionary forces soon forced the allies to evacuate. Four battleships were taken and nine were destroyed, but in the haste and confusion 18 were retaken by the French. However, the allies also took away 15 of the 27 frigates and small ships in the port to add to their squadron and the dockyard had been burned. The political chaos and the shortage of men greatly diminished any major threat from Toulon for a long time. Hood went on to occupy Corsica in February 1794 with the assistance of the Corsican rebels, to act as an advanced base for operations against Toulon or in support of Sardinia and Austria.

The allies were secure in the Mediterranean, and news of the occupation of Toulon led to crisis in the Brest fleet. The fleet was in Quiberon Bay to prevent British aid reaching the counter-revolutionaries in the Vendée. The seamen feared being caught between vengeful royalists and the British fleet and forced the fleet to return to Brest. The British had complete control of the Western Approaches and the Channel. The British were also assisted by confusion in French policy over privateers. The war had commenced with a flurry of privateering ventures. French merchants seemed to be responding in a fairly traditional way to the interruption of their trade, but the Convention disliked the idea of privateering and the Committee of Public Safety wanted to reserve all seamen for the fleet. Privateering declined rapidly until 15 August 1795 when it was officially sanctioned. By then, the tight control over the Channel by small British warships greatly reduced any threat from this quarter.

The rest of 1793 was spent supporting the allied army operating in Flanders and despatching forces to the West Indies to support royalist revolts. Tobago was taken, but

an attack upon Martinique was repulsed. To an extent, the options open to the British were so varied that the ministry displayed remarkable indecision, but by the end of 1793 it was decided that the main thrust was a major expedition to the West Indies. An expedition of over 10,000 troops under Major-General Sir Charles Grey and Vice Admiral Sir John Jervis sailed on 26 November 1793 to attack the French colonies.[20] Martinique fell in March 1794, St Lucia in early April and Guadeloupe by the end of the month. The expedition moved on and troops were landed on St Domingue to support the royalists. The successes were tempered in June by a French force which recaptured Guadeloupe and Grey found it impossible to dislodge the revived defenders under the energetic leadership of Victor Hugues. By 1796 Guadeloupe had become a thorn in the British side as a base for intensive commerce raiding.[21] The campaign on St Domingue soon became bogged down as the British, royalists, republicans and slaves fought for control. Britain sent out reinforcements in 1795 to no effect. A major force of about 20,000 under Major-General Sir Ralph Abercrombie was despatched early in 1796. Abercrombie retook St Lucia and captured St Vincent and Grenada during May and June 1796. Reinforcements to the garrison on St Domingue achieved very little.[22] It was the last full-blooded Caribbean offensive before the Peace of Amiens in 1802. These West Indian campaigns have, traditionally, been seen as a distraction of vital resources. They captured territory but could not force France to make peace. The armies and squadrons were devastated by disease. Possibly over 50 per cent of the 89,000 troops sent to the Caribbean died between 1793 and 1801.

By 1799, the army was in a poor state to defend Britain and the cumulative losses in the Caribbean were regretted. The campaigns did nothing to strengthen the alliances with Austria and Russia, who distrusted operations that exclusively benefited British interests. However, these campaigns did make the best use of Britain's comparative advantage–pre-eminent seapower. Seapower protected concentrations of British land forces which made effective conquests. It is difficult to see where else these forces could have been used to such effect. Although Britain was fighting the war to destroy revolutionary principles, it was equally to ensure that her interests were protected.[23] Caribbean conquests could be exchanged at a peace to protect other vulnerable European interests. No campaign in Europe was likely to create a similar bargaining position, let alone decisively destroy the revolutionary armies. The Low Countries campaign (1793–4) and the support of the Royalist rising in Quiberon (1795) had been disasters. The First and Second Coalitions (1792–7, 1798–1801) were ramshackle combinations with confused and conflicting objectives. Although disillusion and serious concern had crept in by 1797, the Caribbean campaigns gave Britain the only thing that could be hoped

for–some tangible gains for the sacrifice. More than this, the virtual monopoly of plantation produce by 1798 dramatically boosted British imports and reexports, strengthening the exchequer and London credit. Certainly more work needs to done, but it may be that these Caribbean campaigns illustrate the real nature of seapower at this particular moment. Seapower enabled a state to concentrate resources at an enemy's weakest point and achieve a decisive local victory. Victories like this might encourage an enemy to negotiate, but could never compel them to do so. Damage was not being done to the centre of their power. Even cumulative victories were unlikely to have this effect, but if it were associated with stalemate or defeat elsewhere, as in 1711 and 1761, colonial defeats might encourage an enemy to seek terms with Britain to smooth the path to a general peace.[24]

While Britain was engaged in West Indian conquest, French naval forces were recovering in port. There was no attempt to blockade the French in their Atlantic ports during 1793–4. Lord Howe thought such wear and tear on the battleships a waste of time and he expected that the French would be sending out small ships to attack trade rather than challenge the British battlefleet.[25] Howe was right that the battlefleet would stay in port, but small forces of warships regularly got out to reinforce West Indian garrisons or to escort merchantmen to the Americas and in the process undermined British operations in the West Indies and did some damage to British trade. Whether a close blockade would have prevented this is difficult to determine as small forces regularly got out of French ports throughout the war.

After the mutiny of the Brest squadron in September 1793, the Committee of Public Safety sent Jeanbon St André to Brest. St André's reform of the naval yard and his pressure upon officers and seamen enabled the Brest fleet under Vice Admiral Villaret Joyeuse, to get to sea in May 1794. His objective was to find a grain fleet returning from the Chesapeake and escort it back to Brest. On 28 May Villaret's squadron of 26 battleships met Howe's Channel squadron of 25 battleships. On 29 May, the British bore down from the leeward position and Howe consistently tried to cut into the rear of the French line. Eventually, he succeeded but heavy weather and the French leeward position allowed Villaret to draw his squadron away. Action was renewed on 1 June. Howe again bore down, but this time from windward and some ships cut through the French line. Villaret's force was now sandwiched between British ships. Poor shiphandling and gunnery left the French in a difficult position. By the time Villaret managed to reform a line to leeward, he had lost six ships captured and one sunk.

The Glorious First of June added to the attrition on the French navy. The grain convoy got home safely, but the effort of getting the ships to sea had exhausted Brest.

French policy was in a quandary. The Committee of Public Safety wanted to concentrate all efforts on invading Britain and knew that a fleet action would have to be fought. Nineteen battleships were laid down during 1793–4 to work towards this objective. St André, however, saw that the despatch of small cruising squadrons, the traditional "indirect" policy of the mid-century, was more achievable.[26] For the next two years, the French fleet was largely rebuilding and refitting while the war on the land dictated the disposition of the Royal Navy, which turned from a position of strength into crisis.

The first crack appeared in January 1795, when the French armies broke Dutch resistance and captured the Dutch fleet, icebound in the Zuider Zee. The new Batavian Republic began a battleship building programme, but in the immediate term, there was little additional danger and the situation gave Britain a chance to extend her colonial conquests. The British had continued to extend their territorial conquests on the Indian subcontinent in Mysore and Hyderabad in periodic wars from 1780 to 1792. The only French post, Pondicherry, fell easily in August 1793 and no French forces from Europe could hope to make a significant impact in the region. The Dutch war gave the British a further opportunity to expand. A small force captured the Cape of Good Hope on August 1795. Small local forces, under Rear Admiral Peter Rainier, captured Malacca, Ceylon and Amboina during 1795–6. Forces from India were sent to patrol the Red Sea and in 1801 joined up with a British expeditionary army that was occupying Egypt.

The commencement of French privateering in August 1795 did little additional damage. British cruising forces effectively closed the Channel ports and the demand for small coasting vessels to supply the ports and create a flotilla diverted many potential privateers.[27] However, in July 1796, Spain finally allied with France. This was much more serious. Admiral Langara left Cadiz and took 26 battleships to join the 12 French battleships at Toulon. This force seriously outnumbered the British, now commanded by Sir John Jervis, who had dominated the Western Mediterranean since 1793. Minorca was no longer a friendly harbour and the nearest British base was at Gibraltar. The French advance into the Milanese undermined the supporting facilities for the British in Italy. Spanish pressure on Portugal also threatened the only substantial port facilities open to the British. Never, since the British had established a squadron in the Mediterranean in 1694, had their critical supporting networks been so comprehensively threatened. By the end of December 1796, Jervis had withdrawn all British forces out of the Mediterranean and based his squadron at Lisbon.

At sea Britain was reassured of its superior capability. The attrition of French merchant marine continued. On 14 February 1797, Jervis met Admiral Cordova's 22 battleships cruising in dispersed order off Cape St Vincent. He immediately put his 15

battleships between the two main Spanish groups and concentrated his fire upon the larger group. Captain Horatio Nelson of the *Captain* (74) pulled out of line to prevent the Spaniards cutting across Jervis' rear and in the mêlée that followed two Spanish three-deckers, the *San Josef* (112) and the *Salvador del Mundo* (112), surrendered with a "74" and an "80". The Spaniards returned to Cadiz and remained there. However, events on land had completely undercut British seapower. It seemed incapable of delivering anything militarily or diplomatically significant. Seapower was only important if it could influence events ashore and, apart from the West and East Indies, British seapower had not produced results ashore. Indeed, French successes on land seemed set to give its inferior seapower much greater absolute significance during 1797.

1797–1805

Although Britain possessed seapower that was unparalleled in early 1797, there is no doubt that contemporaries had begun to doubt its value. British seapower increased again, substantially, up to 1802, but her ability to influence the course of the war of the Second Coalition remained limited. The increase in seapower came from traditional sources–victories at sea and an expanding base of small ships to ravage French coastal traffic. The weaknesses stemmed from an apparent French willingness to sacrifice its naval forces in an invasion attempt, her indifference to overseas commerce and a general inability by Britain to link its seapower to the interests and activities of its allies in Europe.[28] The importance of these years in the domestic political development of the Royal Navy, and consequently on the history of seapower and naval power in general, should not be underestimated. The popular picture of the navy as a deterrent to invasion completely overshadowed its ineffectiveness to strike decisively at France.

The image of Britain with its back to the wall protected only by its navy is a powerful motif that runs throughout these years. The crude numerical comparison in Table 10.1 indicates the fears about maritime inadequacy.

The fall of the United Provinces and Spain by mid-1796 entirely shifted the quantitative balance, but the situation appeared even worse. At home dangerous revolutionary movements had to be suppressed. The crisis was made worse in April and May 1797 by mutinies in the fleet at Spithead and the Nore.[29] In December 1796 a French force of over 13,000 troops and 17 battleships had appeared off Bantry Bay, although it had not landed. Ireland was on the verge of revolt and French intervention could easily tip the situation towards open rebellion. A much smaller force actually

Table 10.1 The balance of naval forces, 1790–1805

	1790	1796	1800	1805
Britain:				
Battleships	130	123	127	136
Cruisers	130	160	158	160
Total	260	283	285	296
France and allies:				
Battleships	73	160	126	96
Cruisers	64	144	90	71
Total	137	304	216	167

Source: J. Glete, *Navies and nations. Warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1991), vol. 2, pp. 554, 580, 630–1, 641.

landed at Fishguard in Wales. It was quickly rounded up, but not before a run on the Bank of England had started. In October 1797, the Directory ordered the assembly of flat-bottomed boats in the Channel ports and an Army of England consisting of 45,000 men was gathered along the Atlantic coast. Rebellion finally erupted in Ireland in 1798 and in August French forces about 1,150 strong landed at Killkila Bay. It, too, was quickly contained, but the rebellion went on much longer.[30] Attempts to reinforce the French forces in Ireland were intercepted, but the French had shown an unnerving willingness to take great risks to get ashore on the British Isles. The plan to invade England had been abandoned in February 1798, but the overt threat of the invasion flotilla was kept up by the Consulate (1799–1804) until peace was signed in 1802. The response to the crisis was an expanded building programme in 1795–1800, which led to an increasing anxiety about a serious timber shortage. Manpower was also extremely short for this enlarged operational navy and additional legislation such as the Quota Act of 1795, which required every parish to provide men for the navy, was enacted. The year 1797 also saw the highpoint of French Atlantic privateering. It was nothing like the menace that it had been, but the British responded with a Convoy Act of 1798, requiring merchantmen to sail in convoy and the Earl St Vincent, in command of the Western Squadron, instituted a close blockade of the French Atlantic ports. Nelson, the hero of the Nile and Copenhagen, was given command of the Channel squadron in July 1801 to

calm the public nerve.[31] These reactions were very much founded in fears rather than imminent danger, but they created a navy that clawed back the quantitative advantage, largely by its qualitative superiority. By 1800, Britain had captured 200,000 tons of enemy shipping and about 75,000 enemy crewmen were in British prisons by 1802.[32]

Whereas the army had not many laurels to its name between 1793 and 1802, the navy was seen as the great force standing between Britain and catastrophic defeat. Nelson was well aware of the difficulties that the French would face if they ever tried to put their invasion flotilla to sea. If they came unprotected by battleships they would be met by a cloud of small warships. If they were escorted by a battlefleet, British battleships would match them. The French knew they could only come rapidly and by cover of night, but the practicality of navigating an entire army across the Channel on a single tide posed insuperable operational problems.

The Royal Navy also showed an offensive capability. On 11 October 1797, Vice Admiral Adam Duncan with 16 battleships met 11 Dutch battleships escorting trade off the Texel. Duncan ordered his captains to drive through the Dutch line and attack them from leeward. After a bloody artillery battle the British captured seven Dutch battleships, two "50s" and two frigates–the most comprehensive victory of the century with two fleets under sail. It seemed as though a major plank in the French invasion strategy had been knocked away by aggressive action. The navy completed the destruction of Batavian naval power, when it captured more Dutch battleships at Den Helder in 1799.

In 1798, the triumphs of the Royal Navy reached new heights. Jervis, now the Earl St Vincent after his victory of 1797, sent Vice Admiral Nelson with three battleships to investigate rumours of an expedition assembling at Toulon. He later reinforced Nelson with ten more battleships, but Nelson missed the French. Vice Admiral the Comte de Brueys had sailed for Egypt on 11 May 1798 with an army under General Bonaparte. In June, Bonaparte conquered Malta and sailed on for Alexandria. Nelson searched for de Brueys and on 1 August found the French at anchor, in line ahead, in Aboukir Bay. De Brueys had not closed the forward end of his line with the shore and Nelson was able to drive part of his squadron between the French and the land. The French were sandwiched between the fire of British ships. The result was the destruction of the fleet. Only two battleships out of 13 escaped. The victory was so comprehensive that the British navy now had complete freedom of action in Mediterranean waters. Nelson went to Naples to encourage a Neapolitan drive upon French-occupied Rome. Initially successful, it collapsed completely in the face of superior French forces in 1799. St Vincent sent forces to capture Minorca in November 1798, thus reestablishing an excellent forward

base for operations. In September 1800, Malta finally surrendered to British forces, providing another first-rate naval base. With a naval force protecting the Bourbon Neapolitan royal family in Sicily, Britain had a third important base in the Mediterranean. The British were back and able to exploit their seapower to the peripheries of Europe. An expedition to Cadiz failed in 1800, but the army reorganized and went on to land in Egypt in 1801 to begin the reduction of the French hold in the Levant. The navy maintained its grip on the Mediterranean throughout the war. Minorca, Malta and Sicily made it possible to launch attacks on French-occupied Naples in 1805 and 1809. Egypt was again attacked in 1807. French control of the Levant trade was badly damaged in 1798, and in later years, British operations in the Adriatic harassed French and Venetian forces. One of the last significant frigate battles of the war took place off the island of Lissa (Vis) in the eastern Adriatic in March 1811.

The third area in which seapower seemed to be turning the tide of war was in the Baltic. Britain relied upon her trade to the Baltic for naval stores and grain, but was determined to prevent France from receiving the same benefits from this trade. The "Rule of 1756" was applied, as usual, in which Britain claimed the right to prevent neutrals from carrying contraband or trading to ports that would have been closed to them in times of peace. As usual, this raised hostility from neutrals, particularly Denmark and Sweden. Russia, although an ally, was aggrieved by British policy and placed an embargo on trade with Britain in November 1800. In December, Russia, Sweden, Denmark and Prussia had formed an Armed Neutrality. British action was decisive. Before the members of the neutrality could co-ordinate a policy, a fleet under Admiral Sir Hyde Parker was sent to Copenhagen. In April, Nelson's famous attack on the Danish floating batteries off Copenhagen devastated the enemy. The Armed Neutrality collapsed when Tsar Paul was murdered and Russia raised the embargo.

When the Peace of Amiens was signed on 23 March 1802, what little spectacular success the British achieved seemed down to her navy. Apart from the acquisition of Ceylon and Trinidad, Britain agreed to restore its conquests. When war reopened in May 1803, with Britain facing France alone, it followed a similar course. The invasion threat was increased, and this time Bonaparte was in earnest. The blockade of the French coast was renewed with vigour under Sir William Cornwallis. Cruisers and small ships recommenced their destruction of French coastal shipping. A further Convoy Act was passed in 1803. The building programme was renewed and there was a clear feeling of crisis in the navy. The management of the yards, relations with contractors and ship designs were all influenced by the anxiety in government. That the problems were solved fairly effectively in a short space of time is a tribute to the manner in which a

rapidly expanding maritime economy was organized by the British state. It was the culmination of decades of development. Recent studies have explored the management changes and difficulties that the prolonged feeling of crisis generated. Still more work is needed to relate the crisis and the administrative achievements to the actual progress of the war, but it is clear that the navy which emerged from the crisis was larger and better organized and resourced than anything ever experienced.[33] Its political domination of British military thinking was confirmed by Napoleon's strategy against Britain and the further victories that this enabled the Royal Navy to accumulate.

The most famous victory was, of course, Trafalgar. In the popular imagination the victory over the Franco-Spanish squadrons off the coast of southeast Spain on 21 October 1805 was seen as the end of the invasion threat that Napoleon had held over Britain since 1803. That the victory was magnificent is undeniable. It showed again that the British naval officers had a common and clearly held view that their job was to break up the defensive cohesion of the enemy line and destroy their ships at close quarters, where British gunnery and shiphandling were superior.[34] The victory was given additional poignancy with Nelson's death. However, the actual impact of the victory on the war is less clear cut. Napoleon's plan rested on disorganizing and displacing the British naval defences by manoeuvres across the Atlantic. This had failed and Napoleon demobilized the invasion flotilla on 30 August 1805. The *Grand Armée* began its march from Boulogne to the Danube on 27 August and Napoleon ordered the combined fleet, which was at Cadiz, to embark soldiers for a landing in Italy to support his campaign against Austria. The French and Spanish fleet was in poor shape and badly manned when it met Nelson's fleet on its way from Cadiz. The victory confirmed the absolute tactical superiority of the British navy, made any further invasion threat much more remote and confirmed British freedom of action in the Mediterranean, but Napoleon had not given up using his fleet to good effect.

1805–15

Napoleon's strategy against Britain was very much tied up with his economic views. He believed that the credit system upon which British public finances were founded was fundamentally weak. However, he did not believe that a direct maritime war by privateers or imperial warships against trade could destroy the essential liquidity within the British economy. A much broader campaign against Britain had to be instituted, which hit credit and forced up government spending. The Berlin (1806) and Milan (1807) Decrees

prohibited the import of British goods into Europe. The destruction of the market of British manufactures and colonial re-exports was accompanied by an energetic battleship building programme in French, Low Countries and Italian ports. The intention was to force Britain to continue to invest heavily in its warships and wear them out on continuous blockade. Small squadrons would, inevitably, get out on occasion and wear down British forces in the chase. Enormous effort was applied to the building programme, but the fundamental weakness of the French navy remained. The 1803 estimate of eligible seamen only ran to 42,000, and this has been considered an overestimate. The deficiency was tackled by encouraging men to come from all over the empire, and great ingenuity was applied to create effective crews from them. In March 1808 Napoleon created 75 "battalions" of seamen in an attempt to create an *esprit de corps* by militarizing them. It was unpopular among the seamen and only appears to have worked as intended at Antwerp. The original idea was soon diluted, until by 1813 these battalions were serving as infantry.[35]. Equally, reform and education of the officer corps foundered on the rapid dilution of Napoleon's plans.

The failure of Napoleon's plans lay partly in a fundamental miscalculation, partly in the naval situation and partly in the broader maritime conditions. It is questionable if, at the beginning of the nineteenth century, the British economy was vulnerable to significant destabilization from another naval power. In the 1690s there was a clear vulnerability in the mercantile-financial sector of the economy which would have had a crippling impact on overall British economic development. Throughout the eighteenth century the economy had not only grown, but the mechanics of trade–insurance, risk spreading and diversification–had matured. By the 1780s, the role of the domestic economy in wealth and credit generation had also grown. Equally important, the fiscal ability of the government was, by contemporary standards, highly sophisticated. Between 1796 and 1797, a major fiscal crisis was faced and overcome. Government borrowing could still starve commerce and industry of funds, but by the time Napoleon planned his economic warfare, the financial markets and fiscal processes had experienced the crises and were capable of surmounting them.[36] While all this was happening, the destructive power of navies had not increased so dramatically. Napoleon almost certainly overestimated the power of contemporary military and bureaucratic weapons. However, even if the task was technically possible, he faced serious obstacles. A key factor was that Britain integrated its predominant navy with its army, its commerce and its legal system into a strategy that was truly maritime. Napoleon miscalculated the resistance there would be to a prohibition on British goods, not only from individual consumers, but by governments as well. His imperial government was completely unable to stop people

co-operating with British smuggling. The British government used its legal system to connive with the smugglers. In the critical Baltic trade false papers were provided to British ships and the Royal Navy's cruisers and convoy system in the North Sea and Baltic were organized to protect and disguise British traders.[37] The base at Malta provided a valuable *entrepôt* for southern Europe. Britain applied the "Rule of 1756" with vigour, gathering up French trade in neutral ships. It ruthlessly acted when there was any danger of naval interference. After the Franco-Russian Treaty of Tilsit in July 1807, the British landed an army at Copenhagen and seized the Danish fleet. A naval presence was maintained in the Baltic. A similar attempt, in February 1807, to influence neutral Turkey failed. Vice Admiral Sir John Duckworth's squadron forced its way through the Dardenelles, but the objective of the operation was less tangible than the capture of the Danish fleet, and with the diplomatic ambiguities, Duckworth did not push on to Constantinople.[38] Force was not the only way the British navy influenced neutrals. In 1808, when France's new ally, Russia, captured Sveabourg and the Swedish oared flotilla, they threatened to dominate the entire eastern Baltic. Vice Admiral Sir James Saumarez's squadron helped blockade the Russians in the Gulf of Finland. Even after the peace with Russia (September 1809), a treaty with France (January 1810) and the accession of a French marshal, Bernadotte, as crown prince in May 1810, Saumarez was able to keep the Swedes open to British trade until Franco-Swedish relations disintegrated during 1811.[39]

Napoleon's naval efforts appeared spectacular, and were a constant cause of concern to the British. They did push Britain to invest heavily in its navy and caused her to commit herself in 1809 to a dismal expedition to Walcheren Island in the mouth of the Scheldt. The plan was to burn the ships being built at Antwerp and create a diversion in favour of the Austrians. The expedition got bogged down and achieved very little.[40] The French building programme has been seen as a real threat to the British, but it must be questioned whether, had Napoleon succeeded in the mammoth task of uniting the dispersed battleships, he would have had the crews to man them that would have been able to stand up to the highly professional British navy.[41] Most of the battleships were unfinished by 1814 and Napoleon's navy yielded very few results. The period between 1803 and 1815 is a record of heavy French losses at sea. Many of the French and Dutch colonies were taken again, including Martinique, Guadeloupe and the Cape of Good Hope.[42] The French had more success in the Indian Ocean, where Mauritius remained a base for very effective attacks upon trade and warships until the island was finally captured in 1810. By then, there was little need for battleships in the Indian

Ocean, and the capture of Réunion was accomplished with a frigate force. With the fall of Mauritius, the threat to Britain's East Indies trade collapsed.

By 1810, Britain exercised the most complete maritime power. Its navy, its merchant marine, its army and its governmental systems were all working towards using the sea as a means of enriching the state and damaging the enemy. This domination at sea has been translated into a strong feeling that it was crucial to the eventual defeat of Napoleon. This is a central theme of Mahan's analysis.[43] From this perspective, Napoleon's land wars exhausted France. Britain cut France off from overseas commerce and subsidized Napoleon's enemies. Today, there is much more debate over how far the French imperial economy was exhausted rather than just refocused towards central Europe.[44] The exhaustion was not so much economic as military. Manpower for Napoleon's armies drained away at the same time as that for a hostile coalition increased. His continental enemies were supported by British subsidies after 1804, but their main strength lay in their political unwillingness to submit to imperial rule, their administrative resilience which enabled them to reorganize and their diplomatic maturity which eventually enabled them to work as a coalition.[45]

The British navy had played important roles. It was a significant factor in relations with any power that had maritime pretensions. Denmark, Sweden, Naples, Venice and the United States all had to balance their relations with France against British naval power. Russian ambitions in the Mediterranean were very much controlled by the Royal Navy. As an ally, Russia had gained access to the Mediterranean with Turkish support. In 1799 a Russian–Turkish force captured the Ionian Islands and in 1805 contributed to the campaign in Naples. After the treaty with France, Russian warships were blockaded and eventually captured at Lisbon. The navy was vital to maintaining the British army in the Peninsula (1808–14).[46] It played a crucial role in British policy with regard to Spanish America. Despite an alliance with Spain in 1808, Britain continued to have designs upon the American markets which it had held while Spain was an enemy. This role was to be highly significant in preventing Spanish attempts to destroy the independence movements of 1810–25. To these traditional roles of facilitating or hindering the movement of large bodies of troops, the British navy had also developed a powerful ability to strike effectively at population centres. In co-operation with an army and seaborne artillery Britain showed that it could inflict more terror from the sea than ever before. Even when the overall objectives failed, major maritime cities were far less secure. Buenos Aires (1806), Copenhagen (1807), Washington (1814) and Algiers (1816) suffered badly.[47] It was not an offensive weapon that was overwhelmingly destructive, but it had a major impact on the development of the Royal Navy after 1815.

The same questions over the impact of seapower exist for the Anglo-American War, 1812–14. The United States had a strong maritime economy and traditions. The quality of its seamen and ships were second to none, which came as a rude surprise to the British in 1812 after years of success. However, American naval policy was still in the throws of impassioned debate relating to constitutional beliefs and domestic regional and party political ambitions. America had a number of powerful frigates with a history of success in American and Mediterranean waters, but its defence policy was based primarily upon the 1807 scheme of Thomas Jefferson for 188 coastal gunboats integrated with batteries and mobile land artillery. To late-nineteenth century eyes the policy was folly, but recent re-evaluations have presented American intentions and problems in a more balanced manner.[48] By 1814, despite losses to merchantmen and naval vessels, the British had established a fairly tight blockade over the eastern seaboard. They had also demonstrated an ability to land troops and devastate localities. The British were the regional naval power. Their ocean-going fleet was large enough and with adequate regional supply points in the West Indies and Canada to project its power along the American coastline. The American navy performed creditably on the oceans and the Great Lakes, developing its own amphibious capability in support of the army. The naval balance on the Lakes was more equal, but on the high seas, the numbers and growing respect of the British for the Americans tipped the balance strongly against the United States. Over half of the United States sea-going navy of 1812 was lost. The impact of this is difficult to assess. Both sides needed a way out of the war which had begun with ill-defined objectives and was bogged down on land. The real significance of the war, so far as the Federal Navy was concerned, was that, unlike 1775–83, it had performed extremely well and achieved popular successes far in excess of the army. The political popularity this engendered set the navy on a clear course after 1815.[49]

1815–30

When the Napoleonic Wars ended in 1815, Britain was the only global maritime power. Even with a major reduction in her navy, Britain's naval power was unchallenged. From 152 battleships and 183 frigates in 1810, the navy shrank to 112 and 101 of each type by 1820.[50] Still, her proportion of total world naval tonnage remained overwhelming and qualitative improvements increased the margins over potential rivals. Britain was determined to maintain a two-power standard. Political turmoil and the fragile economic recovery made renewed naval competition unattractive to most European powers. Only

Turkey and Spain had maritime interests that were directly threatened between 1815 and 1830. Spain was faced by British determination to protect the independence movements and found it impossible to rebuild her navy, let alone challenge Britain. The Greek Revolt (1821–8) posed a direct threat to the maritime communications of the Ottoman Empire. The Turks responded by building up their fleet which resulted in the last major battle between sailing battlefleets.

The only other naval power whose capability showed a marked increase in the years following 1815 was the United States. Here the "navalists" had, temporarily, won the argument. Professional naval officers at last achieved a permanent influence on government policy with the creation of the Board of Commissioners in 1815. The importance of the navy to the state was emphasized by the growing Federal control over the appointment of officers. The officer corps had become established as part of the machinery of the state.[51] The Navy Act of 1816 allowed for a fleet of nine battleships and 12 frigates, supported by a revenue bill which would ensure continued funding for maintenance. America finally had battleships, but soon found that in the postwar world the need was for the large frigates and other smaller vessels to combat piracy and, after 1818, slavers. In the years that followed, this disjunction between the battleship and American naval needs mixed with growing economic difficulties and new trading priorities in the Pacific revived "anti-navalist" feeling and in 1827 the battleships and the frigates were laid up. The United States found that its maritime ambitions were in line with British expectations and protected by them. It was not until the mid-1830s that American political attention again turned to creating a significant navy.[52]

The European revival in naval building did not really accelerate until the 1840s. No state had a great interest in forcing maritime competition. Britain was satisfied with her position and did not want to become embroiled in conflict. After the successful bombardment of Algiers in 1816, the general situation in the Mediterranean suited Britain. Britain preferred a joint approach to maritime problems and discouraged unilateral naval action by France and Russia against the Barbary Corsairs and Greek pirates. During the early 1820s the Turks rebuilt their fleet in the wake of the Greek Revolt. Particularly active was the viceroy of Egypt, Mehmet Ali, who bought new ships from France and America and hired European officers to navigate them. Britain, France and Russia determined to use some naval forces to enforce a truce. This meant intercepting Mehmet Ali's expeditionary force of 4,000 troops, which left Alexandria on 5 August 1827. The Anglo-French force, under Vice Admiral Sir Edward Codrington, met the Ottoman fleet anchored in line in Navarino Bay on 10 September. A prolonged truce followed and the Russians joined the allies on 11 October. On 18 October the allies

decided that the Turks must be forced to conclude the negotiations before the winter and entered Navarino Bay. The forces were not large: 11 allied battleships and 16 other ships faced seven Turkish battleships and 58 smaller ships. The fierce artillery duel at short range and in the confines of the bay led to the loss of a Turkish battleship, 34 frigates and corvettes, and the best of the Turkish officer corps. The Turks were now unable to move their troops by water, but continued to fight on until November 1828 when a French land force finally took their last stronghold on the Morea. The Russian Black Sea fleet supported the army's advance against Turkish positions at Varna on the Danube. Blockades of Turkish-held positions in the Black Sea, the Mediterranean and at Constantinople were established. British and French naval power was used to prevent the Russian conquest of Constantinople and encourage an armistice.[53]

Sailing warships continued to be used all over the globe until the 1860s, but apart from a short blockade of the Dutch coast by French and British ships in 1830, the sailing wooden battlefleet was disappearing from European warfare. When the French and British fleets deployed in the Baltic in 1855, they were a mixed force of steam and sail. However, the sailing warship did not stagnate in its final years. In the first 40 years of the century, it reached the limits of contemporary design. Practical experience, particularly in combat with the American frigates, experimentation, such as that of Sir Robert Sepping's work with rounded sterns, and, eventually, theoretical contributions, all combined to integrate the work of the shipwright and the emerging profession of naval architect. Britain, the leading maritime and naval power, now undoubtedly led the world in ship design and construction. The ships built in this period lasted for decades, but within 15 years of Waterloo, steamships were accompanying naval expeditions and by the 1850s the dominance of the sailing warship had entered its terminal stages.[54]

Chapter Eleven

Seapower, battlefleets and naval warfare

By the time sailing battleships were giving way to steam, navies had integrated themselves firmly into the governmental bureaucracies of Europe and the United States. They were the arm of the state devoted to the exercise of seapower. In the discussions and political debates about seapower that followed it was implicit that seapower was synonymous with state naval power. Hence, almost all the discussions about seapower have focused on the role of navies. Whether it is the role of navies in war, their relationship with technological innovation in society, their influence on political systems, or their ability to project domestic military power into a global dimension, the debate usually assumes that the state exercises its seapower through the established navy. Mahan did not question that effective seapower must be state naval power. The Jeune École did not question that assumption, but considered a different naval force, focused on commerce destruction, to be an effective alternative to the battlefleet. Since 1918, the debate has concentrated on how the state should use its naval budget in the most effective manner.[1] This has been a realistic response to the way the political debate has been framed since 1815. It is, however, less helpful when considering the evolution of seapower up to this point. Nineteenth-century states were, with variable success and speed, gradually able to integrate their navy, army and civil society together to wage war with increasing central control and direction of resources. The debate about the navy from Philip Colomb and Mahan onwards was part of this integration, and the struggle continues to this day. Seventeenth- and eighteenth-century statesmen could not conceptualize this integration and their views of seapower were, necessarily, far more varied and vague.

For centuries, monarchs had used maritime resources to protect their vital territorial interests. To this end, their own large warships played an important role. State navies

defended the homelands from invasion by armies brought from overseas. Both Denmark and England had long relied upon royal warships for this purpose. These vessels also enabled the monarchs to protect their armies being sent overseas. England relied upon this form of sea protection from the early fifteenth century until the fall of Calais in 1558. The Swedish empire in Germany also relied upon it. In the Mediterranean this function of transport protection had been traditionally carried out by the royal galley fleets. By the end of the sixteenth century some states, such as the United Provinces and Spain, also had to use large royal warships to protect merchant convoys or cargoes.

Only slowly, and in limited circumstances, did the state begin to organize its sea forces in an offensive manner against commerce. One possible objective was to reap an economic or financial reward from action upon the seas. Pirates had done this for millennia, but the state began to harness this aggressive entrepreneurial activity only at the end of the sixteenth century. This offensive action relied upon the private motivation of merchants, courtiers and seamen, and greatly added to the seapower of the state as the legal structures supporting privateering developed in the seventeenth century.

Another offensive objective was, simply, to destroy enemy commerce. The state's navy and private warships combined to make this form of seapower effective. Enemy merchant convoys were vulnerable to the state's large warships, which could locate and overwhelm heavily laden merchantmen travelling in slow concentrations of shipping close to enemy ports. Large numbers of privateers could prey upon ships which sailed individually to avoid or outsail the large state warships. The seasonal tempo of enemy trade could also be disrupted by cruising off the coast and preventing neutrals carrying their goods or supplies. As the battlefleet itself became more significant, so the disruption of the supply of naval stores from the Baltic took on a more offensive tone.

While the attack on convoys was more effective with battleships, offensive action against a growing, diversified and scattered maritime trade after 1697 did not rely upon, or presuppose, the existence of a large battlefleet. The exploitation of seapower in this period did not have, therefore, a clearly defined organizational structure or force composition. Sailing battleships, state and private frigates, galleys and privateers all contributed to the state's needs. Yet by 1815, there is no doubt that the line-of-battle ship was, and continued to be, seen as the fundamental basis and symbol of seapower. The reason for this is an important but neglected question. It is usually assumed that seventeenth- and eighteenth-century seapower was, inevitably, based upon the battleship and battlefleet. The dangers of assuming that a particular technology was a precondition of other major developments has been exposed in other historical fields, such as with the railways, and there is a desperate need for a detailed study of the relationship

between the development of battlefleets and seapower.[2] This study has aimed to examine some of these issues and suggest lines of enquiry.

The primary factor in discussing seapower is the sea itself. It separated the contestants from each other, and often from the object of their disputes, be it colonies, trading posts, convoys or individual merchantmen. Distance and the hostile nature of the environment were highly significant factors. In attack, the seaborne weapon had to have the "reach" to deliver effective force to the point of contact with the enemy. For this the ships had to be durable, the operations sustainable and the force large enough to overcome the defence. Seaborne forces also had to be controlled so that as the distance from the centre increased they were not so constrained by instructions that they could not respond to conditions that were not anticipated at home. Nor must they be so uncontrolled that they were easily diverted by objectives other than those determined by the state. Along with size, durability, sustainability and control, went the competence of the seamen and officers who had to handle the ships and deliver the attack. Not only did the officers have to know how to fight their ships, but they also had to know how to apply effective force to a given point. The intricacies of land warfare, coalitions, diplomacy and relationships with colonial societies were all part of the equation.

On the other side of the coin, defence against seaborne attack depended very much on the quality and quantity of defenders. The results might be very different depending upon whether the opposition were seamen in merchant ships, landsmen in merchant or warships, militia or professional soldiers ashore in fortified or open positions, or trained and confident naval officers and seamen at sea in well-designed and built warships. The type of defence that was met would depend very much on the long-term value that the defending state placed upon the object of the attack. It was very difficult to improvise maritime attack or defence against seaborne forces at short notice throughout this period. This was the great advantage that the British extended between 1701 and 1815. Their long-term focus on seaborne attack and defence over increasing distances, meant that, with the exception of 1775–83, they possessed a growing advantage over their enemies. Britain's needs were more varied than any other power and her organization of seapower more successful in meeting them. The fact that the battleship and battlefleet played a major role in British maritime policy suggests one of the reasons for the dominance of these vessels in naval thinking. However, the evolution of the battleship was just one part of a complex military, political, administrative and economic process.

The large warship that evolved into the line-of-battle ship in the mid-seventeenth century had a long history of providing successful solutions to the state's primary need for seapower. It defended the realm against concentrated enemy attacks, defended treasure

and places against piracy and covered friendly landings. It was also a well-established symbol of state power, service on which was no embarrassment to the military nobility. During the wars of 1652–78, the battleship proved itself capable of sustaining tremendous damage and disrupting enemy commerce. Landings and invasions covered by these ships in the Channel, the Mediterranean and the Americas proved their importance. Between 1678 and 1697, states had different degrees of success in developing their bureaucracies to control and develop their naval officers, and in the building, supply, maintenance and financing of these large ships. The process continued throughout the period, but not without serious questions being asked about the value and effectiveness of the investment. It was in this period that differences in durability, sustainability, control and competence began to become marked. During the eighteenth century, investment in port infrastructure overseas, administrative improvements, some technological changes and improving navigational and hydrographic sciences all helped increase the reach of the large sailing warships by creating regional supporting facilities and reducing attrition by wear and tear. During the same period, the importance of the objectives of a maritime war increased. After 1763, both France and Spain were determined to consolidate and develop their global capability. Substantial battle squadrons could go anywhere and maintain themselves, working to effective operational instructions. In 1778, for the first time, and for a brief period that was over by 1798, a number of navies had developed this capability, which had a large impact on the tactical evolution of the last major sailing ship war.

The battleship, an established symbol of state power, had proved itself capable of adapting to the expanding needs of the maritime powers. However, the possibility must remain that it was not the only way of achieving these objectives. Nor is it clear exactly what the battleship and battlefleet contributed to the establishment of global power. Britain as the dominant role-model is used to suggest that all the advantages of seapower were based upon her dominant battlefleet. French and Spanish failures are, similarly, attributed to the failure of their battlefleets. Proving or disproving this proposition is extremely difficult, but a number of factors leave room for a more complex hypothesis. If the principal benefit of seapower is taken to be the ability to project military power onto the enemy in a manner that is decisive, the analysis must include some reference to amphibious operations. Throughout the ages amphibious power–the ability to attack the enemy's land, destroying property and political power–has been the most direct and destructive application of seaborne resources. Its past significance has become obscured both by the navalist debate of the 1890s and the debate around the continental strategy of 1914–18. However, in the Baltic, the Levant, the American colonies and India, warfare

was essentially "amphibious", not "blue water" or "continental". Also, if the destruction of enemy trade and the growth of friendly trade is important, then the development of commerce-destruction warships must also be considered.

In the case of amphibious operations the battlefleet played an important part. It was the traditional role of battlefleets to protect concentrations of shipping, and this is exactly what the Royal Navy did. The fleet also provided valuable manpower and artillery firepower to the land forces once ashore. It was, therefore, an important contributing factor, but was it a necessary precondition? In limited coastal areas, such as the North Sea, the Baltic and the Mediterranean, it may have been so. The French experience of bombarding the Barbary towns and planning landings in Britain, the 1798 Egyptian campaign, the Swedish attacks upon Denmark and the Spanish campaigns in Sicily suggest that in waters where the expeditionary forces could be easily discovered, the protection of a battlefleet was essential. The battlefleet could not ensure success for the expeditionary force in Europe–indeed, it could have little influence on such campaigns ashore–but without the covering warships few military commanders would risk landing in the enemy's homelands. Elsewhere, the battlefleet's contribution is less clear. The French failures in Canada in 1746 and in India in 1778–1815 were as much to do with the lack of effective local supporting facilities than the failure of battlefleet cover. Equally, British success in the Americas was founded on the contribution of their colonial societies and regular land forces. In India, the East India Company's territorial control and government on the subcontinent and its diplomatic management of the local powers were major factors in British success.[3] Therefore, the battlefleet was important, but not the inevitable factor that determined success or failure.

In the war against commerce the battlefleet's role is even more ambiguous. The assumption that the small ships, privateers and frigates depended on the covering power of the fleet at sea is in need of serious study. The study of privateering has progressed a long way, but important questions still remain unanswered. It is not clear how the economic and social motivators that encouraged investment in privateering were influenced by perceptions of state naval power. The way the smaller ships of the crown's navy interacted with the main fleet, the local maritime economies and the enemy has hardly been explored at all. Even the coincidence of a decline in French privateering with the growing power of the British battlefleet is more complex than appears at first sight. Much more needs to be done to understand how economies were changing in relation to factors other than naval action. The contention that the war on commerce, or the naval war generally, was a major factor in crippling French power also needs further examination. France was not strangled by maritime pressure in any war.

Britain's concentration on a battlefleet navy was, probably, the crucial factor in driving other powers down the route of battlefleet construction. This policy originated in a unique view of the fleet as both the principal weapon of the state and an important element in its domestic political liberty. It had a long incubation, at least from the reign of Henry VIII, but it came to maturity between 1640 and 1660, the very time when the battleship was emerging as a distinctive weapon. To this was added an ideology of maritime power which owed as much to domestic political disputes around the succession of William III as it did to a clear vision of the value of seapower. Until the 1740s it was not clear to other powers that substantial investment in battlefleet construction would yield major rewards. By 1760 there was little doubt, but by this time Britain had established a substantial organizational, political and professional lead on its rivals. France and Spain may not have been substantially damaged in the wars between 1739 and 1763, but they had been diplomatically humiliated by Britain and French pretensions in Europe had been curtailed. Spain, too, had its European ambitions settled and looked to America for the future. Growing maritime commerce added to the belief that a major element of the future lay in seapower, which, rightly or wrongly, was interpreted as battleships. It started the expansion of fleets that peaked in the 1790s, but while fleets could be built, no state could replicate Britain's seapower. That seapower lay not just in the navy or battlefleet, but in the effective integration of her administration, political system, army, colonies and maritime economy towards the ends of the state. The truth of this became evident in 1775. In the war against America, Britain had to rely much more upon naval power alone. The North American colonists that had been such a vital part of the successes in 1756–63 were now hostile. The political nation was less committed to the struggle and this limited the decisions available to Lord North's government and fatally delayed important mobilizations. Enough of the integration remained for Britain to sustain its positions in the West and East Indies. Her Bourbon enemies had not reached the level of organizational or professional efficiency that the stretched British fleet had achieved over years of success, but it was a close-run thing and convinced European powers after 1783 that the race was worthwhile. The gap was closed by 1797, but by 1815, the battlefleets of Europe stood as pale comparisons to the Royal Navy. The message was that the greatest battlefleet had overwhelmed its competitors and played a major role in the collapse of the greatest land power. It was a message congenial to Britain, to the Royal Navy and the European states who now concentrated on the struggles of central Europe for their future. If this was true was hardly investigated. It took another war, with Russia in 1854–6, for the Royal Navy to review its attitude.[4]

In the last years of the nineteenth century technological changes had changed naval power out of all recognition. The modern battleship was a powerful and flexible weapon that had never been pitted against its equals in battle. Mahan's writings were largely a response to this untested technological revolution. He was looking for unchanging principles of naval warfare to guide naval officers and politicians. Many of his conclusions about the course of naval history before 1814 still hold true, but his view of the apparently inevitable rise of the modern state battlefleet misrepresents the challenges and options open to contemporary decision-makers. Many important questions about these matters are still under-researched. There was no clearly defined "military revolution" or technological revolution that ousted one form of war and replaced it by the battlefleet.[5] There was a series of changes which occurred over a prolonged period. The changes were not necessarily directly related, deliberately initiated or understood, but came together by long and convoluted routes. They occurred in maritime technology, state financing, bureaucratic practice, work relationships, city planning, the transmission of ideas between professionals in different disciplines and different countries, ship design, scientific and educational theory, navigation, patronage and state centralization, political theory, diplomacy, weapons technology, the management of public opinion, long-term economic, demographic and employment changes and in the maturing of markets across the world. The very process by which these changes were incorporated is poorly understood. They were not necessarily accidents, but nor were they planned innovations. Some of these issues have been touched upon and explored in the preceding chapters, but much more needs to done before we have a satisfactory understanding of the nature of seapower and naval warfare in the period of the sailing battleship.

Appendix: the nominal strength of selected sailing navies, 1680–1830

The tables in this appendix (A1 to A4) have been abstracted from the information presented in J. Glete, *Navies and nations: warships, navies and state building in Europe and America, 1500–1860*, 2 vols (Stockholm 1993), vol. 2. The tables show the broad numerical balance of battleships and cruisers at five-year intervals. Given the fact that seapower has been and often still is assessed in terms of the numbers and type of warship, the tables give a good impression of the relative seapower potential of states. These figures do not give a complete impression of comparative naval power and reference should be made to Dr Glete's work for details.

However, the following points are important:

1. The figures do not distinguish the ships that a state was immediately able to commission or put into active sea service. Ships were held "in ordinary" in peacetime, stripped down to essentials and kept watertight. The speed with which large warships could be rigged, stored, victualled and, particularly, manned in a crisis depended on the capability of the naval administrations. This was a critical factor throughout the period of the sailing navy.
2. The figures do not distinguish the firepower or seaworthiness of the warships. For example, in the the 1740s British battleships were rather smaller in tonnage and length than their French and Spanish counterparts. Thus, they carried a smaller number of heavy guns on their main deck and more lighter guns on their upper decks. A French "74", therefore, carried a broadside equal to a British "90". The British ceased to classify their "50s" as battleships in 1756. The type gradually fell out of use by other powers over the succeeding years. For comparative purposes, the figures include all "50s" as battleships until 1790, at which point they are classified as cruisers. Cruiser has the same meaning as "frigate".

Table A1 The changing structure of selected sailing navies, 1680–1715

	1680	1685	1690	1695	1700	1705	1710	1715
England								
Battleships	95	98	83	112	127	122	123	119
Cruisers	20	20	26	46	49	66	57	63
Small ships	0	0	0	1	1	0	0	0
Total	115	118	109	159	177	188	180	182
France								
Battleships	89	94	89	119	108	105	94	62
Cruisers	28	29	32	30	31	32	24	12
Small ships	0	10	10	7	7	6	4	2
Total	117	133	131	156	146	143	122	76
Netherlands								
Battleships	62	72	52	72	83	79	86	71
Cruisers	23	23	21	42	29	28	33	24
Small ships	0	0	1	2	1	1	0	0
Total	85	95	74	116	113	108	119	95
Denmark/Norway								
Battleships	33	33	27	27	32	36	39	36
Cruisers	11	11	11	10	10	11	13	15
Small ships	0	0	0	0	0	0	0	0
Total	44	44	38	37	42	47	52	51
Sweden								
Battleships	17	27	29	33	39	43	39	29
Cruisers	5	5	6	5	10	11	17	13
Small ships	0	0	0	0	0	0	0	0
Total	22	32	35	38	49	54	56	42

3. The small ships (between 300 tons and 500 tons between 1680 and 1785 and 500 tons to 1,000 tons between 1790 and 1830) are included to indicate how some states began to retain smaller craft on the establishment in peacetime rather than mobilize them from the maritime economy. The figures give an impression of how the overall structure of states' formal

Table A2 The changing structure of selected sailing navies, 1720–65

	1720	1725	1730	1735	1740	1745	1750	1755	1760	1765
Great Britain										
Battleships	102	106	105	107	101	104	115	117	135	139
Cruisers	52	46	45	43	43	67	79	74	115	91
Small ships	1	1	4	4	10	36	26	25	51	36
Total	155	153	154	154	154	207	220	216	301	266
France										
Battleships	27	39	38	43	47	45	45	57	54	59
Cruisers	6	6	7	7	7	23	21	31	27	23
Small ships	0	1	3	5	5	5	2	10	14	21
Total	33	46	48	55	59	73	63	98	95	103
Netherlands										
Battleships	56	44	38	42	35	33	34	29	28	30
Cruisers	18	20	18	25	24	27	20	25	29	29
Small ships	0	0	0	0	0	0	0	0	0	0
Total	74	64	56	67	59	60	54	54	57	59
Spain										
Battleships	11	16	39	44	43	31	15	39	49	41
Cruisers	15	11	11	13	12	6	5	22	23	16
Small ships	3	2	3	4	4	4	9	16	17	21
Total	29	29	53	61	59	41	29	77	89	78
Sweden										
Battleships	24	22	19	24	23	24	25	24	25	25
Cruisers	9	8	7	7	10	8	11	15	15	16
Small ships	0	0	0	0	0	0	0	0	0	0
Total	33	30	26	31	33	32	36	39	40	41
Denmark/Norway										
Battleships	24	25	25	28	26	28	30	28	30	31
Cruisers	16	13	9	9	7	8	12	9	12	12
Small ships	0	0	0	0	0	0	0	0	0	0
Total	40	38	34	37	33	36	42	37	42	43

Table A3 The changing structure of selected sailing navies: 1770–1800

	1770	1775	1780	1785	1790	1795	1800
Great Britain							
Battleships	126	117	117	137	130	123	127
Cruisers	76	82	111	133	130	160	158
Small ships	33	28	58	36	16	28	43
Total	235	227	286	306	276	311	328
France							
Battleships	68	59	70	62	73	56	44
Cruisers	35	37	58	57	64	65	43
Small ships	24	21	34	36	15	41	23
Total	127	117	162	155	152	162	110
Netherlands							
Battleships	31	26	26	47	48	28	16
Cruisers	44	38	40	38	36	30	6
Small ships	0	0	0	18	0	0	0
Total	75	64	66	103	84	58	22
Spain							
Battleships	55	64	59	61	72	76	66
Cruisers	21	28	34	37	46	51	41
Small ships	19	23	32	37	7	6	6
Total	95	115	125	135	125	133	133
Sweden							
Battleships	23	24	23	25	16	13	14
Cruisers	12	13	12	17	13	12	10
Small ships	0	0	0	0	0	0	0
Total	35	37	35	42	29	25	24
Denmark/Norway							
Battleships	31	33	34	32	32	30	28
Cruisers	14	15	16	18	16	13	9
Small ships	0	6	6	6	0	0	0
Total	45	54	56	56	48	43	37

Table A3 (cont.)

	1770	1775	1780	1785	1790	1795	1800
Russia (Baltic)							
Battleships	27	34	31	44	51	50	54
Cruisers	10	14	14	23	30	27	24
Small ships	2	5	5	7	0	0	0
Total	39	53	50	74	81	77	78
Russia (Black Sea)							
Battleships	0	0	0	3	7	11	13
Cruisers	0	6	10	12	22	13	10
Small ships	8	8	9	7	2	3	1
Total	8	14	19	22	31	27	24
USA							
Battleships	0	0	0				0
Cruisers	0	0	5				16
Small ships	0	2	0				2
Total	0	2	5				18

navies altered over the period. The figures do not include oared warships, which played a vital role in the Baltic and the Mediterranean. Bomb vessels, sloops, schooners, brigs, corvettes or cutters are too small to be included in these figures. While the importance of oared vessels has been much more acknowledged recently, the role of small sailing ships in the exercise of state seapower, particularly by the Atlantic seapowers, is still in need of detailed investigation. The figures also do not include military transport vessels or any non-combat vessels such as hospital ships, storeships and harbour hulks.

I am very grateful to Dr Glete for permission to use these figures and for his detailed advice on presentation.

Table A4 The changing structure of selected sailing navies: 1805–30

	1805	1810	1815	1820	1825	1830
Great Britain						
Battleships	136	152	126	112	96	82
Cruisers	160	183	151	101	86	100
Small ships	33	63	73	35	39	35
Total	329	398	350	248	221	217
France						
Battleships	41	46	52	48	43	33
Cruisers	35	31	31	31	33	40
Small ships	11	7	9	7	13	29
Total	87	84	92	86	89	102
Netherlands						
Battleships	15	13	19	7	6	5
Cruisers	10	7	14	14	16	17
Small ships	1	3	3	7	10	18
Total	26	23	36	28	32	40
Spain						
Battleships	40	28	16	14	5	3
Cruisers	26	17	15	13	8	5
Small ships	8	5	2	6	5	2
Total	74	50	33	33	18	10
Sweden						
Battleships	12	13	13	12	8	8
Cruisers	10	8	7	6	5	5
Small ships	0	0	0	0	0	0
Total	22	21	20	18	13	13
Denmark/Norway						
Battleships	28	20	2	2	3	3
Cruisers	9	11	0	3	5	7
Small ships	0	3	0	0	2	3
Total	37	34	2	5	10	13

Table A4 (cont.)

	1805	1810	1815	1820	1825	1830
Russia (Baltic)						
Battleships	35	33	33	27	31	31
Cruisers	10	10	13	14	19	18
Small ships	1	3	3	2	2	4
Total	46	46	49	43	52	53
Russia (Black Sea)						
Battleships	12	10	15	16	16	16
Cruisers	6	4	8	6	5	8
Small ships	0	0	2	2	1	2
Total	18	14	25	24	22	26
USA						
Battleships	0	0	3	7	7	7
Cruisers	11	9	7	7	9	10
Small ships	1	3	6	6	6	15
Total	12	12	16	20	22	32

Notes

Chapter One

1. S. Pollard, *European economic integration, 1815-1970* (London, 1974), pp. 12-19; D. S. Landes, *The unbound Prometheus: technological change and industrial development in Western Europe from 1750 to the present* (Cambridge, 1969), pp. 152-4.
2. E. Gellner, *Nations and nationalism* (Oxford, 1983; 1986 edn), *passim*, especially pp. 134-5.
3. See F. Harcourt, "Gladstone, monarchism and the new imperialism, 1868-1874", *Journal of Imperial and Commonwealth History*, xiv (1985), pp. 20-51; *idem*, "Disraeli's imperialism, 1866-1868: a question of timing", *Historical Journal*, xxiii (1980), pp. 87-109; P. J. Durrans, "A two-edged sword: the Liberal attack on Disraelian imperialism", *Journal of Imperial and Commonwealth History*, x (1982), pp. 262-84; P. Marshall, "The imperial factor in the Liberal decline, 1880-1885", in J. E. Flint & G. Williams (eds), *Perspectives of empire* (London, 1973), pp. 130-47. For contemporary views of Britain as the dominant thassalocracy, see H. S. Wilkinson & J. Dilkes, *Imperial Defence* (London, 1890); H. S. Wilkinson, *The great alternative* (London, 1893); *idem*, *Command of the sea* (London, 1894); F. Maurice, *National defence* (London, 1897). The term "thalassocracy" is used to convey the idea of a state having, and depending on, a predominant maritime power. See C. G. Reynolds, *History and the sea. Essays on maritime strategy* (Columbia, SC, 1989), p. 20.
4. Quoted in R. Simpson, *How the Ph.D. came to Britain: a century of struggle for postgraduate education* (Guildford, 1983), p. 86. See also M. Sanderson, *The universities and British industry, 1850-1970* (London, 1972), pp. 6-23.
5. H. Coutau-Bégarie, *L'évolution de la pensée navale* (Paris, 1990), p. 48.
6. On the Crimean War, see A. D. Lambert, *The Crimean War, British grand strategy against Russia, 1853-1855* (Manchester, 1990). I am grateful to Dr Lambert for sight of his unpublished paper on British coastal bombardment strategy, "The sword of empire: the Royal Navy and the Cherbourg strategy, 1840-1890". On the American Civil War, see R. Luraghi, *A history of the Confederate navy* (London, 1996).
7. O. Parkes, *British battleships: a history of design, construction and armament* (London, 1957; 1966 edn), pp. 175-6.
8. P. Padfield, *The battleship era* (London, 1972), pp. 88-9; J. W. Doerffer, "Impact of the application of iron and steel as a structural material upon the development of science and technology in shipbuilding

in the XIX century", in D. Howse, *Five hundred years of nautical science, 1400-1900* (London, 1981), pp. 322-44.

9. N. Le Pourhiet-Salat, *La défense des Iles Bretones de l'Atlantique des origines à 1860* (Vincennes, 1983), pp. 294-8.
10. For the debates over the curriculum, see R. Spector, *The professors of war: the Naval War College and the development of the naval profession* (Newport, RI, 1977), especially pp. 112-17; H. W. Richmond, "The training of naval officers", National Maritime Museum, Richmond Papers, Ric 1/7 8(?) April 1907; Ric 1/8, enclosure in diary, Corbett to Richmond, 11 August 1909.
11. A. Marwick, *The nature of history* (London, 1970), pp. 34-43; D. S. Goldstein, "The organisational development of the British historical profession, 1884-1921", *Bulletin of the Institute of Historical Research*, iv (1982), pp. 180-93.
12. M. Pattison, "Suggestions on academical organisation with especial reference to Oxford", quoted in H. S. Wilkinson, *The brain of the army: a popular account of the German General Staff*, 2nd edn (London, 1890), p. 307.
13. Wilkinson, *The brain of the army*, p. 165.
14. National Maritime Museum, Richmond Papers, Ric 1/7, Diary, 4 April 1907. Laughton's contribution to the professional education of naval officers in Britain and the United States is the subject of an important new study by Dr Andrew Lambert. I am particularly grateful to Dr Lambert for allowing me to see the typescript of this work prior to publication.
15. Spector, *Professors of war*, 128.
16. The literature on Mahan is extensive. An excellent biography is R. Seager, *Alfred Thayer Mahan: the man and his letters* (Annapolis, Md., 1977). A good collection of essays on Mahan is J. B. Hattendorf (ed.), *The influence of history on Mahan* (Newport, RI, 1991).
17. J. B. Hattendorf, "Alfred Thayer Mahan and his strategic thought", in J. B. Hattendorf & R. S. Jordan (eds), *Maritime strategy and the balance of power: Britain and America in the twentieth century* (London, 1989), pp. 83-94; B. Gough, "The influence of history upon Mahan", in Hattendorf (ed.), *The influence of history on Mahan*, pp. 7-23; A. T. Mahan, *The influence of sea power upon history* (Boston, Mass., 1890), pp. 28-89.
18. See P. Asseur, "La Jeune École", in *Marine et technique au XIXe siècle* (Paris, 1995), pp. 453-93; J. Dulffer, "The German Reich and the Jeune École", in *idem*, pp. 499-515; E. Ferrante, "The impact of the Jeune École on the way of thinking of the Italian navy", in *idem*, pp. 517-25.
19. J. S. Corbett, "The teaching of naval and military history", *History*, I (1916), p. 16.
20. M. R. Cellier, "Les idées strategiques en France de 1870 à 1917" (1928), reprinted in H. Coutau-Bégarie, *L'évolution de la pensée navale*, pp. 195-231; C. S. Thomas, *The German navy in the Nazi era* (London, 1990), pp. 40-1. At the end of the battle of words, a rather flawed interpretation of the Mahanian philosophy triumphed in the building of the *Kriegsmarine*. See H. H. Herwig, "The influence of A. T. Mahan upon German sea power", in Hattendorf, *The influence of history on Mahan*, pp. 67-80. See also K. W. Bird, "The origins and role of German naval history in the inter-war period, 1918-1939", *Naval War College Review*, xxxii (1979), pp. 42-58. For the postwar debate in Britain, see Schurman, *The education of a navy*, pp. 150, 183; *idem*, *Julian Stafford Corbett, 1853-1922* (London, 1981), pp. 128-30; J. Goldrick, & J. B. Hattendorf (eds), *Mahan is not enough* (Newport, RI, 1993).
21. *Dictionary of National Biography*; J. B. Hattendorf, "The study of war history at Oxford, 1862-1990", in J. B. Hattendorf & M. H. Murfett (eds), *The limitations of military power. Essays presented to Professor Norman Gibbs on his eightieth birthday* (London, 1990), pp. 3-61, especially pp. 15-23.

22. The title of the lecture was "The revival of naval history". I am grateful to Dr Andrew Lambert for providing me with a copy of the lecture.
23. J. H. Rose, *The indecisiveness of modern wars and other essays* (London, 1927); C. Fayle, "The deflection of strategy by commerce in the eighteenth century" *Journal of the Royal United Services Institution* (1923), pp. 281–90; *ibid*, "Economic pressure in the war of 1739–48", pp. 434–46; R. Pares, *War and trade in the West Indies, 1739–1763* (Oxford, 1936); C. Northcote Parkinson, *Trade in the eastern seas, 1793–1813* (Cambridge, 1937); G. S. Graham, *The empire of the North Atlantic: the maritime struggle for North America* (Oxford, 1958).
24. C. M. Andrews, *The colonial period of American history*, 4 vols (New Haven, CT, 1934–7); H. L. Osgood, *The American colonies in the eighteenth century*, 4 vols (New York, 1924).
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27. J. R. Hill, *Maritime strategy for medium powers* (London, 1986); E. Grove, *The future of seapower* (London, 1990), pp. 237–40.
28. J. B. Hattendorf, "Recent thinking on the theory of naval strategy", in Hattendorf & Jordan, *Maritime strategy and the balance of power*, pp. 136–61; G. W. Baer, *One hundred years of sea power: the U.S. Navy, 1890–1990* (Stanford, CA, 1994), pp. 428–44, 451.
29. Good examples of the contribution made can be found in the collections of essays produced as a result of conferences held in conjunction with Yale University: J. B. Hattendorf (ed.), *Ubi sumus: the state of naval and maritime history* (Newport, RI, 1994); *idem*, *Doing naval history: essays towards improvement* (Newport, RI, 1995).
30. Besides the works of John Hattendorf already noted, see C. G. Reynolds, *Command of the sea. The history and strategy of maritime empires* (New York, 1974); *idem*, *History and the sea: essays on maritime strategies* (Columbia, SC, 1989); C. S. Gray & R. W. Barnett (eds), *Seapower and Strategy* (Annapolis, MD, 1989).
31. For an overview in the British context, see N. A. M. Rodger, "Britain", in Hattendorf, *Ubi sumus*, pp. 41–57. For recent examples of historical writings see J. Black, *European warfare, 1660–1815* (London, 1994), *passim; idem, Warfare: renaissance to revolution, 1492–1792* (Cambridge, 1996), *passim*.
32. Hattendorf, *Ubi sumus*, *passim*.

Chapter Two

1. The complex issue of shipping tonnage measurement is tackled in a number of works. The statistics are most complete for British and North American shipping. See C. R. French, "Eighteenth century tonnage measurements", *Journal of Economic History*, xxxiii (1976), pp. 434–43; S. Ville, "The problem of shipping tonnage measurement in the English shipping industry, 1780–1830", *International Journal of Maritime History*, I (1989), pp. 65–83; W. Salisbury, "Early tonnage measurement in England", *Mariner's Mirror*, lii (1966), pp. 41–52; "Rules for ships built for, and hired by, the Navy", *idem*, pp. 172–80; "Early tonnage measurement in England, part III", *idem*, pp. 329–40; "Early tonnage measurement in England, part IV", *Mariner's Mirror*, liii (1967), pp. 251–64; "Early tonnage

measurement in England, part V", *Mariner's Mirror*, liv (1968), pp. 69–76. Ungar's article in the *American Neptune* explains the comparative measurements, which permit a rough approximation of European merchant tonnage.

2. J.J. McCusker, "The tonnage of ships engaged in the British colonial trade during the eighteenth century", in P. Uselding (ed.), *Research in Economic History. A Research Annual*, vi (1981), p. 78.
3. K. Glamann, "European trade, 1500–1750", in C. Cipolla, *The Fontana economic history of Europe: the sixteenth and seventeenth centuries* (London, 1974), p. 455. See also M. Bogucka, "The role of the Baltic trade in European development from XVIth to the XVIIIth centuries", *European Economic History*, ix (1980), pp. 5–20.
4. R. W. Unger, *Dutch shipbuilding before 1800* (Amsterdam, 1978), pp. 29–32; *idem*, "Dutch herring, technology and international trade in the seventeenth century", *Journal of Economic History*, xl (1980), pp. 253–79; E. E. Rich & C. H. Wilson (eds), *The Cambridge economic history of Europe*, vol. v: *The economic organisation of early modern Europe* (London, 1977), pp. 148–53.
5. R. W. Unger, "The tonnage of Europe's merchant fleets", *American Neptune*, lii (1992), pp. 260–1.
6. Unger, *Dutch shipbuilding*, pp. 36–40.
7. *Ibid*., pp. 2–12.
8. P. Butel, "France, the Antilles and Europe in the seventeenth and eighteenth centuries: renewals of foreign trade", in J. D. Tracy (ed.), *The rise of the merchant empires* (Cambridge, 1990), pp. 153–73; J. B. Collins, "The role of Atlantic France in the Baltic trade: Dutch traders and Polish grain at Nantes, 1625–1675", *Journal of European Economic History*, xiii (1984), pp. 239–89.
9. I. Wallerstein, *The modern world system II: mercantilism and the consolidation of the European world economy, 1600-1750* (New York, 1980), p. 45.
10. J. R. Bruijn, *The Dutch navy of the seventeenth and eighteenth centuries* (Columbia, SC, 1993), pp. 3–7; Unger, *Dutch shipbuilding*, p. 25.
11. Unger, "The tonnage of Europe's merchant fleets", pp. 260–1.
12. R. Davis, *English overseas trade* (London, 1973), pp. 18–20; *idem*, "English foreign trade, 1660–1700", *Economic History Review*, vi (1954), pp. 78–98; *idem*, *The rise of the English shipping industry* (Newton Abbot, 1962; 1972 edn), pp. 10–19; I. K. Steele, *The English Atlantic, 1675-1740* (Oxford, 1986), pp. 3–5, for the voyage of the *Palm Tree*, a 40-ton barque; C. R. French, "Productivity in the Atlantic shipping industry: a quantitative study", *Journal of Interdisciplinary Studies*, xvii (1987), pp. 613–38, especially p. 630; W. E. Minchinton, "Characteristics of British slaving vessels, 1698–1775", *Journal of International History*, xx (1989), pp. 53–81, especially pp. 60–5; L. F. Horsfall, "The West Indian trade", in C. N. Parkinson (ed.), *The trade winds* (London, 1948), p. 180; R. R. Menard, "Transport costs and long-range trade, 1300–1800: was there a European 'transport revolution' in the early modern era?", in J. D. Tracy (ed.), *The political economy of the merchant empires* (Cambridge, 1991), pp. 228–75, especially pp. 268–75.
13. See L. Harper, *The English navigation laws, passim*. The concept of "mercantilism" has gone through a series of vicissitudes in recent decades. A good collection of essays which highlight some of these changes can be found in D. A. Irwin (ed.), *Trade in the pre-modern era, 1400-1700*, 2 vols (Cheltenham, 1996), vol. 2, pp. 303–412. A particularly interesting view of the current state of the debate is A. W. Coats, "Mercantilism, economic ideas, history and policy", in *idem*, pp. 350–69.

14. J. Glete, *Nations and navies: warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1993), vol. 1, pp. 110–13.
15. K. Glamann, "European trade, 1500–1700", in Cipolla, *The Fontana economic history of Europe*, pp. 454–67; M. Bogucka, "The role of the Baltic trade in European development from the XVIth to the XVIIIth centuries", European Economic History, ix (1980), pp. 5–20.
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17. R. C. Anderson, *The naval wars in the Baltic, 1522-1850* (London, 1910, 1969 ed), pp. 47–76; B. Capp, *Cromwell's navy: the fleet and the English Revolution, 1648-1660* (Oxford, 1989), pp. 106–12.
18. Anderson, *The naval wars in the Baltic*, pp. 162–207, 211–12; D. D. Aldridge, *Sir John Norris and the British naval expeditions in the Baltic, 1715-1727* (unpublished PhD, London, 1972), *passim*; J. J. Murray, George I, *the Baltic and the Whig split of 1717: a study in diplomacy and propaganda* (London, 1969), especially pp. 161–89, 243–84.
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20. J. de Courcy Ireland, "Corsairs of North Africa", *Mariner's Mirror*, lxii (1976), pp. 271–83.
21. E. Frangakis-Syrett, *The commerce of Smyrna in the eighteenth century (1700-1820)* (Athens, 1992). I am grateful to Professor Frangakis-Syrett for making this work available to me. See also S. P. Anderson, *An English consul in Turkey: Paul Rycaut at Smyrna, 1667-1678* (Oxford, 1989), pp. 50–173; A. C. Wood, *A history of the Levant company* (London, 1935), *passim*.
22. P. Butel, "France, the Antilles and Europe in the seventeenth and eighteenth centuries", in Tracy, *The rise of the merchant empires*, pp. 157–8.
23. J. Delumeau, "Le commerce extérieur française au XVIIe siècle", *XVIIe Siècle*, lxxi–ii (1966), pp. 81–105.
24. Butel, "France, the Antilles and Europe".
25. J. F. Bosher, "The political and religious origins of La Rochelle's primacy in trade with New France, 1627–1685", *French History*, vii (1993), pp. 286–312; *idem*, "The imperial environment of French trade with Canada, 1660–1685", *English Historical Review*, cviii (1993), pp. 50–81.
26. Butel, "France, the Antilles and Europe", p. 160; Unger, "The tonnage of Europe's merchant fleets", p. 261.
27. W. Barrett, "World bullion flows, 1450–1800", in Tracy, *The rise of the merchant empires*, p. 224.
28. J. Black, *A system of ambition: British foreign policy, 1660-1793* (London, 1991), p. 129; M. A. Thomson, "Louis XIV and the origins of the War of Spanish Succession", *Transactions of the Royal Historical Society*, 5th Series, iv (1954), pp. 111–34.
29. J. Alcala-Zamora, *España, Flandres y el Mar del Norte (1618-1639): La Ultima Ofensiva Europea de los Austrias Madrilenos* (Barcelona, 1975), pp. 92–3.
30. F. Serrano-Mangas, *Los galeones de la Carrera de Indias, 1650-1700* (Seville, 1985), pp. 3–5.
31. D. Alsedo y Herrara, *Piraterias y agresiones de los Ingleses y de otros pueblos de Europa in la America Española desde el siglo XVI a XVIII* (Madrid, 1883), pp. 147–75. The depredations of Charles Clark and Edward David in the South Sea which were also impossible for the Spanish authorities to prevent are also

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32. Capp, *Cromwell's navy*, pp. 94–106; R. A. Stadling, *The armada of Flanders* (Cambridge, 1992), pp. 144–50.
33. G. Walker, *Spanish politics and imperial trade* (London, 1979), *passim*; Serrano-Mangas, *Los galeones*, pp. 1–4.
34. Serrano-Mangas, *Los galeones*, pp. 13–116, 25, 35–7, 200.
35. R. Walters & B. Robbins, *A voyage round the world in the year MDCCXLI, II, III, IV by George Anson* (London, 1748; 1974 edn, Oxford, ed. G. Williams), pp. 340, 392.
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40. Walker, *Spanish politics and imperial trade*, pp. 223–5; Parry, *The Spanish seaborne empire*, pp. 316–20.
41. J. H. Parry, *Trade and dominion. European overseas empires in the eighteenth century* (London, 1971; 1974 edn), p. 45.
42. C. R. Boxer, *The Portuguese seaborne empire, 1415-1825* (London, 1969), pp. 205–27.
43. *Ibid*., p. 209.
44. C. R. Phillips, "The growth and composition of trade in the Iberian empires, 1450–1750", in Tracy, *The rise of the merchant empires*, pp. 34–101, especially pp. 64–5; Jones, *War and economy*, pp. 182, 194.
45. Glete, *Navies and nations*, vol. 2, pp. 619–20.
46. J. Black, *European warfare, 1660-1815* (London, 1994), pp. 121, 138, 144; D. Makay & H. M. Scott, *The rise of the great powers, 1648-1815* (London, 1983), p. 259.
47. Wallenstein, *The modern world system: mercantilism*, pp. 187–9.
48. J. A. Rawley, *The Trans-Atlantic slave trade. A history* (New York, 1981), especially pp. 17, 428; C. Palmer, *Human cargoes* (Champaign, Illinois, 1981), *passim*; Minchinton, "Characteristics of British slaving vessels, 1698–1775"; J. R. McNeill, *Atlantic empires of France and Spain: Havana and Louisbourg, 1700-1763* (Chapel Hill, NC, 1985), p. 180.
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55. *Ibid*., pp. 99–127.
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61. McNeill, *Atlantic empires*, p. 150.
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70. *Ibid*., pp. 124–5; Frangakis-Syrett, *The commerce of Smyrna*, pp. 185–7.
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Chapter Three

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2. For the development of British strategy, see D. Baugh, "Great Britain's blue water policy, 1689–1815", *International History Review*, x (1988), pp. 33–58; "Maritime strength and Atlantic commerce: the uses of a grand maritime empire", in L. Stone (ed.), *An imperial state at war: Britain from 1689 to 1815* (London, 1994), pp. 185–233. For American policy, see C. L. Symonds, *Navalists and antinavalists: the naval policy debate in the United States, 1785–1827* (Newark, DE, 1980). The formal, permanent, bureaucratic organization of European navies developed rapidly in the sixteenth century. The relationship of these institutions to the overall development of the state and to war at sea is fundamental to understanding the development of seapower before 1650. Two excellent new studies which tackle this are N. A. M. Rodger, *The safeguard of the sea: a naval history of Britain*, vol. 1: 660–1649 (London, 1997) and D. Goodman, *Spanish naval power, 1589–1665* (Cambridge, 1997).
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12. Glete, *Nations and navies*, vol. 1, pp. 175–7, 196, 206.
13. P. Padfield, *Tides of empire: decisive naval campaigns in the rise of the West*, 2 vols (London, 1982), vol. 2, p. 53.
14. It is debatable whether the English did not put to sea in 1667 as a result of lack of stores–it could be that they thought peace negotiations would make the expense of fitting out unnecessary. See J. R. Jones, *The Anglo-Dutch wars of the seventeenth century* (London, 1996), pp. 174–6.
15. Padfield, *Tides of empire*, vol. 2, p. 51.
16. *Ibid*., p. 86.
17. M. Baumber, *General-at-sea: Robert Blake and the seventeenth century revolution in naval warfare* (London, 1989), pp. 135–58.
18. S. R. Pincus, *Protestantism and patriotism: ideology and the making of English foreign policy, 1650–1665* (unpublished PhD, Harvard, 1990), pp. 306–12. The difficulties faced by the Royal Navy in the Baltic from 1715 are examined in D. D. Aldridge, "The victualling of the British naval expeditions to the Baltic Sea between 1715 and 1727", *Scandinavian Economic History Review*, xii (1964), pp. 1–25.
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25. T. J. Denman, *The political debate over strategy, 1689–1712* (unpublished PhD, Cambridge, 1985), pp. 95–100.
26. The correspondence can be followed in detail in PRO, Adm1/381.
27. See Admiral Nicholas Haddock's correspondence in BL, Egerton Mss, 2528–2529. See also Admiralty to St Vincent, 19 May 1799, in G. Rawson (ed.), *Nelson letters* (London, 1971 edn), p. 183.
28. P. Bamford, *Forests and French seapower, 1660–1789* (Toronto, 1956), pp. 98–104.
29. *Ibid*., pp. 195–6.
30. D. G. Pilgrim, *The uses and limitations of French naval power in the reign of Louis XIV: the administration of the Marquis de Seignelay, 1683–1690* (unpublished PhD, Brown University, Providence, RI 1969), pp. 175–200.
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33. J. R. McNeill, *Atlantic empires of France and Spain: Havana and Louisbourg, 1700-1763* (Chapel Hill, NC, 1985), pp. 138–50.
34. D. Syrett, *The Royal Navy in American waters, 1775-1783* (Aldershot, 1989), p. 59.
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80. An excellent account of d'Enville's expedition is J. Pritchard, *Anatomy of a naval disaster. The 1746 French expedition to North America* (Montreal, 1995).
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88. B. Lavery, *The ship of the line*, 2 vols (London, 1983), vol. 1, pp. 31–70.
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90. J. P. Merino Navarro, *La armada española en el siglo XVIII* (Madrid, 1981), pp. 115–35.

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Chapter Four

1. The Armada campaign of 1588 is an excellent example of the effective use of artillery at sea. Although the English destroyed few ships in the Channel battles of July, they inflicted substantial damage, which made the return journey to Spain, north about Scotland, extremely hazardous. See G. Parker & C. Martin, *The Spanish Armada* (London, 1988).
2. J. Glete, *Navies and nations: warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1993), vol. 1, p. 178.
3. See the excellent series of essays in *Military Effectiveness* to observe the difference in the quality of evidence available to historians of the more recent past.
4. For an example of how a battle may be differently interpreted, in this case the Battle off Portland, 18 February 1653, see M. Baumber, *General-at-Sea: Robert Blake and the seventeenth century revolution in naval warfare* (London, 1989), pp. 171–7 and W. L. Clowes, *The Royal Navy. A history from the earliest times to 1900*, 7 vols (London, 1897–1903), vol. 2, pp. 178–84.
5. Glete, *Navies and nations*, vol. 1, pp. 158–72.
6. It has been estimated that Spanish corsairs took five times as many prizes during the war than Spain's enemies were able to take. See C. R. Phillips, *Six galleons for the King of Spain. Imperial defense in the early seventeenth century* (Baltimore, Md., 1986), p. 15.
7. S. R. Gardiner & C. T. Atkinson (eds), *Letters and papers relating to the First Dutch War, 1652-1654*, 6 vols (London, 1899–1930), vol. 1, p. 89; A. Vreugdenhil, *Lists of men-of-war, 1648-1700: Part IV, ships of the United Netherlands, 1648-1702* (London, 1938), p. 3.
8. J. Alcala-Zamora, *España, Flandres y el Mar del Norte (1618-1639)* (Barcelona, 1975), pp. 433, 451; Phillips, *Six galleons*, pp. 215–17.
9. J. Trammond, *Manuel d'histoire maritime de France* (Paris, 1947 edn), p. 155. In total the French crown could muster 57 ships in 1630. Thereafter, there was a decline to a low of 23 by 1655. See Glete, *Navies and nations*, vol. 2, p. 575. The Ponant is the Atlantic seaboard of France, as distinct from the Levant, the Mediterranean seaboard.
10. R. C. Anderson, *Lists of English men-of-war, 1509-1649* (London), pp. 20–1.
11. Glete, *Navies and nations*, vol. 2, p. 550; R. C. Anderson, *Lists of men-of-war, 1650-1700: Part I, English ships, 1649-1702* (London, 1935), pp. 2–5; B. Lavery, *The ship of the line*, 2 vols (London, 1983), vol. 1, pp. 158–9.
12. Lavery, *Ship of the line*, vol. 1, p. 21.
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14. B. Capp, *Cromwell's navy. The fleet and the English Revolution, 1648-1660* (Oxford, 1989), pp. 68–72.
15. Baumber, *General-at-sea*, pp. 113, 117.
16. P. Padfield, *Tides of empire: decisive naval campaigns in the rise of the West*, 2 vols (London, 1982), vol. 1, p. 203.
17. J. R. Jones, *The Anglo-Dutch wars of the seventeenth century* (London, 1996), pp. 64–73.
18. For a comparison of views, see Gardiner & Atkinson (eds), *Letters and papers relating to the First Dutch War*, vol. 1, pp. 53–8; J. D. Davies, "Towards a comparative study of seventeenth century British and Dutch naval administration: some questions, some thoughts and some sources" (unpublished paper).
19. See Jones, *The Anglo-Dutch wars*, pp. 9–11; S. R. Pincus, *Protestantism and patriotism: ideologies and the making of foreign policy, 1650-1668* (Cambridge, 1996).
20. Gardiner, *Letters and papers relating to the First Dutch War*, vol. 1, p. 194, Blake to the Speaker, 20 May 1652; Tromp to the States General, 30 May (n.s.) 1652. There are numerous accounts of the actions during the First Dutch War. The best collection of contemporary materials is still the Navy Records Society volumes, Gardiner & Atkinson (eds) *Letters and papers relating to the First Dutch War*. The section in Clowes, *The Royal Navy*, vol. 2, pp. 140–202, is also a reliable narrative. Shorter narratives can be found in Padfield, *Tides of empire*, vol. 1, pp. 181–234; Jones, *Anglo-Dutch Wars*, pp. 107–44.
21. Reminiscences of Richard Gibson, in Gardiner & Atkinson (eds), *Letters and papers relating to the First Dutch War*, vol. 1, p. 10; Council of State to Blake, 10 June 1652, in *ibid*., pp. 301–2.
22. Fighting tactics are still poorly understood as the evidence available is limited and highly ambiguous. For some very good analyses of the evidence, which demonstrates how views have altered over the last 100 years, see J. S. Corbett, *Fighting instructions, 1530-1816* (London, 1904); B. Tunstall in N. Tracy (ed.), *Naval warfare in the age of sail: the evolution of fighting tactics, 1650-1815* (London, 1990). Tunstall was Corbett's son-in-law and built upon his research. Rodger, "The development of broadside gunnery".
23. For different interpretations of the battle, see Baumber, *General-at-sea*, pp. 136–8 and Padfield, *Tides of empire*, vol. 1, pp. 195–8.
24. De With to the States General, 13 October 1652, in Gardiner & Atkinson (eds), *Letters and papers relating to the First Dutch War*, vol. 2, pp. 329–30.
25. J. Israel, *The Dutch Republic. Its rise, greatness and fall, 1477-1806* (Oxford, 1995), pp. 721–2.
26. Order of the Council of State, 18 May 1652, Gardiner & Atkinson (eds), *Letters and papers relating to the First Dutch War*, vol. 1, p. 183; Order of the Council of State, 24 May 1652, *ibid*., p. 222.
27. Padfield, *Tides of empire*, vol. 1, pp. 211–12.
28. Baumber, *General-at-sea*, pp. 151, 161.
29. R. Davis, *The rise of the English shipping industry in the seventeenth and eighteenth centuries* (Newton Abbot, 1962; 1972 edn), pp. 12–13; Israel, *The Dutch Republic*, pp. 721–2. There is a great need for a thorough study of mid-seventeenth-century privateering.
30. The importance of the convoy may be illustrated by the new English articles of war in which, for the first time, it became a duty of every captain to convoy merchantmen. See M. A. Oppenheim, *History of the administration of the Royal Navy, 1509-1660* (London, 1896; 1988 edn), pp. 312–13.
31. A good example of the changing thinking is illustrated by the Earl of Sandwich's plan for the 1665 campaign. See R. C. Anderson (ed.), *The journal of Edward Montagu, First Earl of Sandwich, admiral and*

general at sea (London, 1929), p. 222. The journal has some very good examples of tactical thinking at this time.

32. D. J. Starkey, *British privateering enterprise in the eighteenth century* (Exeter, 1990), pp. 178–9.
33. These changes can be traced in Oppenheim, *Administration of the Royal Navy*, 304–27.
34. J. R. Bruijn, *The Dutch navy in the seventeenth and eighteenth centuries* (Columbia, SC, 1993), p. 73.
35. Corbett, *Fighting instructions*, pp. 99–104.
36. B. Nosworthy, *The anatomy of victory. Battle tactics, 1689–1763* (New York, 1992), pp. 20–3. Compare this with Lord Wimbledon's additional instructions, 11 October 1625, in Corbett, *Fighting instructions*, pp. 61–2.
37. During the Anglo-Dutch wars, the Dutch relied on Danes, Norwegians and Germans to man their vessels. See Israel, *The Dutch Republic*, p. 623.
38. The full text of these instructions can be found in Corbett, *Fighting instructions*, pp. 99–104.
39. For descriptions of the battle, see Clowes, *The Royal Navy*, vol. 2, pp. 186–92; Padfield, *Tides of empire*, vol. 1, pp. 225–8; Gardiner & Atkinson (eds), *Letters and paperss relating to the First Dutch War*, vol. 3, pp. 1–146.
40. Clowes, *The Royal Navy*, vol. 2, 194–9.
41. Glete, *Navies and nations*, vol. 1, p. 184.
42. Jones, *The Anglo-Dutch Wars*, p. 142; Glete, *Navies and nations*, vol. 1, p. 184.
43. C. H. Firth (ed.), *The narrative of General Venables* (London, 1900); Baumber, *General-at-sea*, pp. 203–5, 211–35; Capp, *Cromwell's navy*, p. 94.
44. Anderson, *The journal of Edward Montagu*, pp. 3–70; Capp, *Cromwell's navy*, pp. 105, 107–9.
45. Padfield, *Tides of empire*, vol. 1, p. 213.
46. Bruijn, *The Dutch navy in the seventeenth and eighteenth centuries*, p. 73.
47. Glete, *Navies and nations*, vol. 1, p. 186; R. C. Anderson, *Naval wars in the Baltic, 1522–1850* (London, 1910), pp. 82–8.
48. Anderson, *Naval wars in the Baltic*, pp. 89–90.
49. *Ibid*.
50. Why Sweden and Denmark failed to respond to the breakdown of their joint control of the Baltic is unclear. The successful Dutch intrusion did not lead to decisive efforts by either power to re-establish a Scandinavian domination of this sea. It is, however, an important question in the history of the Baltic region. See J. Glete, "Bridge and bulwark: the Swedish navy and the Baltic, 1500–1809", in G. Rystad, K.-R. Bohme & W. M. Carlgren (eds), *The Baltic and power politics, 1500–1990: in quest of Trade and security*, vol. 1: 1500–1890 (Lund, 1994), pp. 10–58, especially pp. 43–5; *idem*, *Navies and nations*, vol. 1, p. 186.
51. Capp, *Cromwell's navy*, pp. 94, 109.
52. On the continuity of ideas regarding the uses of naval power, see H. Granier, "La pensée navale française dans la première moitié du XVIIe siècle", in H. Coutau-Bégarie, *L'Évolution de la pensée navale* (Paris, 1992), vol. 2, pp. 37–53.
53. C. de la Roncière, *Histoire de la marine française*, 5 vols (Paris, 1906–20), vol. 5, pp. 335–6.
54. See D. G. Pilgrim, *The uses and limitations of French naval power in the reign of Louis XIV: the administration of the Marquis de Seignelay, 1683–1690* (unpublished PhD, Brown University, Providence, RI, 1969), pp. 175–200; Glete, *Navies and nations*, vol. 1, p. 188; Tramond, *Manuel*, p. 209.

55. E. Taillemite, "Une marine pour quoi faire? La stratégie navale de Louis XIV", *Guerres Maritimes (1688-1713)* (Vincennes, 1996), pp. 93–102, especially pp. 94–5. The inconsistency of Louis' views on the fleet is also apparent in Roncière, *Histoire de la marine française*, vol. 5, pp. 325–30.
56. J. B. Collins, *The state in early modern France* (Cambridge, 1995), pp. 89–90.
57. The best account of Colbert's policy regarding naval development is J. Meyer, *Colbert* (Paris, 1981).
58. Ronciere, *Histoire de la marine française*, vol. 5, p. 421; E. Taillemite, "Colbert et la marine", in R. Mousnier, *Un nouveau Colbert* (Paris, 1985), pp. 217–27; C. H. Cole, *Colbert and a century of French mercantilism*, 2 vols (New York, 1939; 1964 edn), vol. 1, pp. 383–474.
59. Cole, *Colbert*, vol. 1, pp. 428, 436–50.
60. Roncière, *Histoire de la marine française*, vol. 5, pp. 211–60.
61. Glete, *Navies and nations*, vol. 1, p. 188.
62. Roncière, *Histoire de la marine française*, p. 452.
63. Pilgrim, *The uses and limitations of French naval power*, pp. 421–3.
64. J. W. Konvitz, *Cities and the sea: port planning in early modern Europe* (Baltimore, Md., 1978), pp. 82–3.
65. B. Cros, "Dunkerque au temps de Louis XIV", *Chasse-Marée*, xciii (1995), pp. 30–40; P. Villiers, "La guerre de course en France de Louis XIV à Napoleon 1er", *Marines et technique au XIXe Siècle* (Paris, 1995), pp. 91–140.
66. P. Blok, *The life of Admiral De Ruyter*, trans. G. J. Renier (London, 1933), pp. 150–75.
67. N. M. Crouse, *The French struggle for the West Indies, 1665-1713* (New York, 1943), pp. 5–7. The expedition was linked to Colbert's expedition with four regiments of foot to establish royal control over Martinique.
68. An important building programme was begun in 1664, but this was more important for the lessons it provided to the naval administration than the strength it added to the fleet. The best survey of Charles II's navy, which also includes a very useful comparative section on other navies, is F. Fox, *Great ships: the battlefleet of King Charles II* (London, 1980). See also F. Fox, "The English naval shipbuilding programme of 1664", *Mariner's Mirror*, lviii (1992), pp. 277–92.
69. The causes of the Second Dutch War have been explained in a number of ways. The most severely economic explanation is provided by C. H. Wilson, *Profit and power: a study of England and the Dutch Wars* (London, 1957). Wilson only deals with the First and Second Dutch Wars in this study. S. R. Pincus has recently reinterpreted the wars very firmly, from the English perspective, as an ideological conflict in which traditional fears of a Catholic universal monarchy were transfered to the Dutch, who seemed to be carving out a universal monarchy based upon their control of trade. This thesis is developed in his *Protestantism and patriotism: ideology and the making of English foreign policy, 1650-1665* (unpublished PhD, Harvard University, Cambridge, Mass., 1990); "Popery, trade and universal monarchy: the ideological context of the outbreak of the Second Anglo-Dutch War". *English Historical Review*, *cvii* (1992), pp. 1–29; *Protestantism and patriotism: ideologies and the making of English foreign policy, 1650-1668* (Cambridge, 1996). Views based upon the more immediate political considerations and capabilities of the major political characters, especially Charles II, James and Jan de Witt, can be found in J. R. Jones, *The Anglo-Dutch Wars of the seventeenth century* (London, 1996), pp. 145–155; Israel, *The Dutch republic*, pp. 768–74.
70. R. Ollard, *Man of war: Sir Robert Holmes and the Restoration navy* (London, 1969).

71. D. G. Shomette & R. D. Haslach, *Raid on America: the Dutch naval campaign of 1672-1674* (Columbia, SC, 1988), pp. 16–17.
72. Blok, *The life of Admiral De Ruyter*, pp. 181–5.
73. Israel, *The Dutch Republic*, p. 767.
74. R. E. J. Weber, "The introduction of the single line ahead as a battle formation by the Dutch, 1665–1666", *Mariner's Mirror*, lxxiii (1987), pp. 8–9.
75. For a good account of the English plans see Anderson (ed.), *The Journal of Edward Montagu*, pp. 179–82, 203–9.
76. The best accounts of the Battle of Lowestoft are in Clowes, *The Royal Navy*, vol. 2, pp. 255–66; Padfield, *Tides of empire*, vol. 2, pp. 35–40.
77. A. W. Tedder, *The navy of the Restoration: from the death of Cromwell to the Treaty of Breda; its work, growth and influence* (Cambridge, 1916), pp. 140–2.
78. Blok, *The Life of Admiral De Ruyter*, pp. 207–20.
79. List of Beaufort's fleet in Clowes, *The Royal Navy*, vol. 2, p. 286.
80. A. T. Mahan, *The influence of sea power upon history, 1660-1789* (Boston, Mass., 1890), p. 118; Padfield, *Tides of empire*, vol. 2, p. 49; Clowes, *The Royal Navy*, vol. 2, p. 269. For a more sympathetic view, see Tedder, *The navy of the Restoration*, p. 152.
81. J. R. Powell & E. K. Timings (eds), *The Rupert and Monck letter book 1666, together with supporting documents* (London, 1969), p. 264, Clifford to Arlington, 21 July 1666.
82. Weber, "The introduction of the single line ahead", p. 16.
83. For accounts of the Four Days Battle, see F. Fox, *A distant storm. The Four Days Battle of 1666. The greatest sea fight of the age of sail* (Rotherfield, 1996); H. A. Van Forest & R. E. J. Weber, *De Vierdaagszeeslag, 11-14 Juin 1666* (Amsterdam, 1984); Blok, *The life of Admiral De Ruyter*, pp. 220–38; Clowes, *The Royal Navy*, vol. 2, pp. 267–78; Mahan, *The influence of sea power upon history*, pp. 116–26; Padfield, *Tides of empire*, vol. 2, pp. 49–52; Powell & Timings, *The Rupert and Monck letter book*, pp. 231–58.
84. For the English repairs and replenishment of their fleet, see Powell & Timings, *The Rupert and Monck letter book*, pp. 53–109.
85. The fullest account of this operation can be found in Ollard, *Man of war* (1969), pp. 148–61.
86. Blok, *The life of Admiral De Ruyter*, pp. 250–1.
87. J. R. Bruijn, "Dutch privateering during the Second and Third Anglo-Dutch Wars", *Acta Historicae Neerlandicae*, xi (1977), p. 87; Clowes, *The Royal Navy,* vol. 2, pp. 425–8.
88. P. G. Rogers, *The Dutch in the Medway* (Oxford, 1970), pp. 49–50.
89. Blok, *The life of Admiral De Ruyter*, p. 277.
90. R. Hutton, *Charles II. King of England, Scotland and Ireland* (Oxford, 1989; 1991 edn), p. 242.
91. *Ibid*., p. 271; Jones, *The Anglo-Dutch Wars*, pp. 96–103.
92. Hutton, *Charles II*, p. 249.
93. Fox, *Great ships*, pp. 100–12.
94. *Ibid*., pp. 116–23.
95. The best account in English is P. Sonnino, *Louis XIV and the origins of the Dutch War* (Cambridge, 1988).
96. Blok, *The life of Admiral De Ruyter*, pp. 305–6.
97. Israel, *The Dutch Republic*, p. 798.
98. J. Childs, *The army of Charles II* (London, 1976), pp. 181–3.

99. C. R. Boxer, "Some second thoughts on the third Anglo-Dutch war, 1672–1674" in *Transactions of the Royal Historical Society* (5th series), xix (1969), pp. 67–94.
100. The fullest account in English of this raid is in Shomette & Haslach, *Raid on America*. Evertsen's main objective was to intercept the returning East India Company convoy off St Helena, which he failed to do in the face of a similar English force under Captain Richard Munden, whose intention was to intercept the returning VOC convoy. See *idem*, pp. 65–73.
101. C. Buchet, *La lutte pour l'espace Caribe et la façade Atlantique de l'Amerique Centrale du Sud, 1672-1763*, 2 vols (Paris, 1991), vol. 1, pp. 94–5; Blok, *The life of Admiral De Ruyter*, pp. 348–57.
102. R. C. Anderson, "The Sicilian War of 1674–1678", *Mariner's Mirror*, lvii (1971), pp. 240–2.
103. Du Quesne also had six fireships and galliots.
104. For details of the battle, see Roncière, *Histoire de la marine Française*, vol. 5, pp. 616–26; Anderson, "The Sicilian War", pp. 250–1; Blok, *The life of Admiral De Ruyter*, pp. 366–9.
105. Anderson, *Naval wars in the Baltic, 1522-1850*, pp. 108–11.
106. Accounts of these West Indian campaigns can be found in Buchet, *La lutte pour l'espace Caribe*; Roncière, *Histoire de la marine française*, vol. 5, pp. 652–65; Crouse, *The French struggle for the West Indies*, pp. 110–21.
107. Roncière, *Histoire de la marine Française*, vol. 5, pp. 667–74.
108. Bruijn, "Dutch privateering during the Second and Third Anglo-Dutch Wars", pp. 89–90.
109. Dr Jane Ohlmeyer has shown that Irish privateers had a significant impact on Anglo-Irish trade routes between 1642 and 1650. English ships probably captured around 1,700 Dutch vessels in the First Anglo-Dutch war. See J. Ohlmeyer, "Irish privateers during the Civil War, 1642–1650", *Mariner's Mirror*, lxxvi (1990), pp. 119–33. There was a growing demand for literature about the buccaneers, pirates or privateers in the Americas. The work of Esquemeling is the most famous. J. Esquemeling, *The buccaneers of America* (London, 1684; New York reprint, 1987).
110. The best description of the evolution of maritime law and the issues related to neutral trade is still C. J. Kulsrud, *Maritime neutrality to 1780* (Boston, Mass., 1936). However, Kulsrud's view that a generally accepted set of legal principals underpinned international law at sea should be viewed with care. See R. Pares, *Colonial blockade and neutral rights, 1739-1763* (Oxford, 1938), p. 154.
111. Fox, *Great ships*, pp. 153–7.
112. See Sandwich's journal on his decision not to attack Algiers in 1661 and Teddiman's attack on Bergen in 1665 for the problems of seaborne attacks on forts. Anderson, *The journal of Edward Montagu*.
113. One of the best accounts of these relationships is still W. G. Bassett, *The Caribbean in international relations, 1670-1707* (unpublished PhD, London, 1934).
114. Bacon's Rebellion and the imposition of metropolitan control upon the colonies during this period is explored in S. S. Webb, *1676: the end of American independence* (New York, 1984).
115. Anderson, *Naval wars in the Baltic, 1522-1850*, pp. 128–31.
116. R. C. Anderson, *Naval wars in the Levant, 1559-1853* (Liverpool, 1952), pp. 206–25.
117. W. G. Bassett, *op.cit*., pp. 276–7.
118. C. Duffy, *Fire and stone: the science of fortress warfare, 1660-1860* (Newton Abbot, 1975), p. 156. For the development and subsequent history of the bomb vessel, see C. Ware, *The bomb vessel* (London, 1996).

119. D. Davies, "The birth of the Imperial Navy? Aspects of English naval strategy *c.*1650–1690", in M. Duffy, *Parameters of British naval power, 1650–1850* (Exeter, 1992), pp. 14–38, especially p. 28.
120. S. R. Hornstein, *The Restoration navy and English foreign trade, 1674–1688: a study in the peacetime use of seapower* (Aldershot, 1991), especially pp. 233, 236, 255, 259–64.
121. For Prince Rupert's resentment at interference from Charles II, the Duke of York and the Navy Board, see J. D. Davies, *Gentlemen and tarpaulins: the officers and men of the Restoration navy* (Oxford, 1991), pp. 164–71.
122. Much more work is needed on this subject to obtain a clear picture of the emerging professional relationships, but for specific examples see P. Le Fevre, "Tangiers, the navy and its connection with the Glorious Revolution of 1688" *Mariner's Mirror*, lxxiii (1987), pp. 183–90; D. Davies, "James II, William of Orange and the admirals", in E. Cruickshanks (ed.), *By force or default? The Revolution of 1688–1689* (Edinburgh, 1989), pp. 82–108.
123. For slightly different views on the French blockade of Cadiz in 1686, see Bassett, W. G., *op.cit.*, pp. 292–3, especially p. 305; Pilgrim, *The uses and limitations of French naval power*, pp. 219–20.
124. On the development of the cruising policy, see Hornstein, *The Restoration navy*, pp. 105–50 and Pilgrim, *The uses and limitations of French naval power*, pp. 259–61.
125. Mahan, *The influence of sea power upon history*, p. 209.
126. C. R. Pennell, "Tripoli in the late seventeenth century: the economics of corsairing in a 'Sterill Country' ", *Libyan Studies,* xvi (1985), pp. 101–12.
127. The story of events leading up to the invasion can be found in many works. The question of the timing of William's decision is one of the remaining controversies. See M. Ashley, *The Glorious Revolution of 1688* (London, 1966); D. McKay & H. M. Scott, *The rise of the great powers, 1648–1815* (London, 1983), pp. 44–5; J. R. Jones, *The revolution of 1688 in England* (London, 1972).
128. See J. R. Tanner, "Naval preparations of James II", *English Historical Review*, viii (1893), p. 278; E. B. Powley, *The English navy in the revolution of 1688* (Cambridge, 1928), especially, p. 77; Davies, "James II, William of Orange and the admirals", p. 84.
129. Pilgrim, *The uses and limitations of French naval power*, p. 315; M. Ashley, *James II* (London, 1977), p. 232.
130. The decision to land in the West Country as opposed to the North of England or East Anglia has been examined by C. Jones, "The Protestant wind of 1688: myth and reality", *European Studies Review*, iii (1973), pp. 201–21; J. L. Anderson, "Combined operations and the Protestant wind: some maritime aspects of the Glorious Revolution of 1688", *The Great Circle*, ix (1987), pp. 96–107. Although Jones and Anderson focus on different factors contributing to the decision and interpret the role of the easterly wind a little differently, they agree that the decision to go west was taken before the fleet sailed.
131. Powley, *The English navy in the revolution of 1688*, pp. 85–8, 94–5; Davies, "James II, William of Orange and the admirals"; Davies, *Gentlemen and tarpaulins*, pp. 199–27.
132. Although Topsham on the Exe was a good landing place, Plymouth was not secured until 24 November. See J. Childs, *The army, James II and the Glorious Revolution* (Manchester, 1980), p. 191. This book, chapter 7, gives a good account of the campaign.
133. This is not to deny that the battlefleet had a powerful defensive strength. It existed to break up any concentrations of enemy shipping, whether trade or invasion convoys. Danish and Swedish fleets were employed more usually for the latter purposes during the period. The English fleet, however, had a strong offensive motive.

134. For William's reconstruction and use of the army see J. Childs, *The British army of William III* (Manchester, 1987), pp. 4–30. Davies touches on the reaction in the fleet in "James II, William of Orange and the admirals", p. 92. The fullest account of the following war, J. Ehrman, *The navy in the war of William III, 1689-1697* (Cambridge, 1953), does not really explore the issue in detail. It is an important subject deserving more research.
135. The best overall summary of these operations is Buchet, *La lutte pour l'espace Caribe*.
136. See Roncière, *Histoire de la marine française*, pp. 588–90.

Chapter Five

1. Some of the important issues that need to be explored are discussed in P. Pugh, *The cost of seapower. The influence of money on naval affairs from 1815 to the present day* (London, 1986).
2. For interesting and conflicting views of the influence of the military revolution on the political trajectory of states, see B. M. Downing, *The military revolution and political change. Origins of democracy and autocracy in early modern Europe* (Princeton, NJ, 1992); J. Glete, "Empire building with limited resources: Sweden and the development of military organisation", paper at *Congreso España y Suedia en el Barroco (1600-1660)* (Madrid, October 1997). I am extremely grateful to Jan Glete for allowing me sight of his paper.
3. For the debates on the "military revolution" see C. J. Rogers (ed.), *The military revolution debate: readings on the military transformation of early modern Europe* (Boulder, Colo., 1995). The readings in this work summarize the debate to date. See also J. Lynn, "How war fed war: the tax of violence and contributions during the *Grand Siècle*", *Journal of Modern History*, lxv (1993), pp. 286–310 for the general thesis relating the costs of war to the way wars were waged and financed.
4. H. Legohérel, *Les trésoriers généraux de la marine (1517-1788)* (Paris, 1963), pp. 179–80.
5. B. R. Mitchell & P. Deane, *Abstract of British historical statistics* (Cambridge, 1962), p. 389. The army accounted for between 37 and 34 per cent of current expenditure. The majority of the rest was devoted to debt servicing.
6. E. J. Phillips, *The founding of Russia's navy. Peter the Great and the Azov Fleet, 1688-1714* (Westport, Conn., 1995), p. 140; J. P. Merino Navarro, *La armada española en el siglo XVIII* (Madrid, 1981). The figure for Spain hides the cost of the galley squadron, paid for by the Church *Crusada*, and the expenses of the large establishment at Havana, paid for by Mexican revenues.
7. A fascinating description of the general neglect of Flanders barrier towns in the 1730s, which had been such a powerful diplomatic factor up to 1714, can be found in the diary of the eighth Lord Cathcart (Historical Manuscripts Commission identification number A24), 28 August–20 October 1738.
8. P. K. O'Brien, "The political economy of British taxation, 1660–1815", *Economic History Review*, 2nd series, xli (1988), p. 7.
9. For a good discussion of how the Spanish crown tried to use these expedients in the 1660s, see D. Goodman, *Spanish naval power, 1589-1665* (Cambridge, 1997), pp. 39–67. An interesting conflict of

interest in naval armaments and coinage debasement occurred in the 1620s and 1640s when copper desperately required for bronze guns was being used for the debased copper coinage, the *vellon*. See *ibid*., p. 149.

10. An excellent study of the Dutch capital market can be found in J. C. Riley, *International government finance and the Amsterdam capital market, 1740-1815* (Cambridge, 1980).
11. C. W. Petersen, "The impact of weapons on ship design in the Baltic: the Danish naval experience, 1500–1750", in D. Howse (ed.), *Five hundred years of nautical science, 1400-1900* (London, 1981), p. 31.
12. Riley, *International government finance and the Amsterdam capital market*, pp. 10–12, 24–5.
13. J. R. Bruijn, *The Dutch navy of the seventeenth and eighteenth centuries* (Columbia, sc, 1993), p. 109.
14. J. Glete, *Nations and navies: warships navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1993), vol. 1, p. 161; "Empire building with limited resources: Sweden and the development of military organisation". Paper presented at *Congresso España y Suedia en el Barroco* (1600–60), Madrid, Oct. 1997; "Bridge and bulwark: the Swedish navy and the Baltic, 1500–1809", in G. Rystad, K.-R. Boehme & W. M. Carlgren (eds), *The Baltic in power politics* (Lund, 1994), vol. 1, pp. 9–59. I am very grateful to Jan Glete for allowing me sight of an essay prior to publication, "Absolutism or dynamic leadership? The rise of large armed forces and the problem of political interest aggregation from the mid-seventeenth century perspective".
15. Legohérel, *Les Trésoriers Généraux de la Marine*, p. 212. See also G. Symcox, *The crisis of French seapower, 1688-1697: from guerre d'escadre to guerre de course* (Hague, 1974), pp. 103–7.
16. A brief overview of the development of the English navy can be found in R. Harding, *The evolution of the sailing navy, 1509-1815* (London, 1995).
17. Royal Naval Museum, Admiralty Manuscripts, Corbett Manuscripts, vol. vii, 162–6.
18. This important subject is still in need of research and discussion. The best accounts are in G. E. Aylmer, *The king's servants: the civil service of Charles I, 1625-1642* (London, 1961); *The state's servants: the civil service of the English republic, 1649-1660* (London, 1973); "From office holding to civil service: the genesis of modern bureaucracy", *Transactions of the Royal Historical Society*, 1979, pp. 91–108; A. V. Coates, "A radically different bureaucracy: dockyard administration in the late seventeenth century", in W. B. Cogar (ed.), *New interpretations in naval history* (Annapolis, Md., 1997), pp. 65–78. For a wider and different perspective, see H. Parris, *Constitutional bureaucracy. The development of the British central administration since the eighteenth century* (London, 1969), especially pp. 22–38.
19. For an interesting discussion of other administrative traditions, see J. A. Armstrong, "Old regime administrative elites: prelude to modernisation in France, Prussia and Russia", *International Review of Administrative Sciences*, xxxvii (1972), pp. 21–40. See also C. H. Church, *Revolution and red tape: The French ministerial bureaucracy, 1770-1850* (Oxford, 1981), pp. 15–17.
20. A. Lebigre, "Colbert et les commissaires du roi, grands jours et intendants. La réduction des officiers à l'obéissance", in R. Mounier, *Un nouveau Colbert* (Paris, 1985), pp. 133–44. Perhaps the clearest and most concise statement of Colbert's maritime policies is E. Taillemite, "Les problèmes de la marine de guerre au XVIIe Siècle", *XVIIe Siècle*, lxxxvi (1970), pp. 21–37.
21. Colbert's ambition, decisions and achievement are also the subject of debate. A more critical view of achievements and the idea of a more limited ambition have emerged from historical analyses as the twentieth century has progressed. Compare C. de la Roncière, *Histoire de la marine française*, vol. 5 (Paris, 1920), pp. 313–433; J. Tramond, *Manuel d'histoire maritime de la France* (Paris, 1947 edn), pp.

189–208; J. Meyer, *Colbert* (Paris, 1981), pp. 212–28, 255; E. Taillemite, "Colbert et la Marine", in R. Mousiner, *Un nouveau Colbert* (Paris, 1985), pp. 217–27.

22. For a good study of the comparative failure of French administration, see C. B. A. Behrens, *Society, government and the enlightenment: the experience of eighteenth century France and Prussia* (London, 1985).
23. The standard history of the Spanish Navy, C. F. Duro, *Armada española desde la Uniónde los Reinos de Castilla y de Aragón*, 9 vols (Madrid, 1895–1903), vol. 6, pp. 210–15, does not discuss the junior administration. Merino Navarro, *La armada española en el siglo XVIII*, identified similar problems facing the Spanish naval administrators with regard to their relations with naval officers that their French contemporaries faced–see p. 42.
24. Bruijn, *The Dutch navy in the seventeenth and eighteenth centuries*, pp. 99–102.
25. T. Munck, *Seventeenth century Europe, 1598–1700* (London, 1989), pp. 161, 357–9.
26. A. F. Upton, "Sweden", in J. Miller (ed.), *Absolutism in the seventeenth century* (London, 1990), p. 117.
27. Phillips, *The founding of Russia's navy*, pp. 61–2, 86, 88, 128.
28. On British policy concerning preservation from rot at the end of the period, see A. D. Lambert, *The last sailing battlefleet: maintaining naval mastery, 1815–1850* (London, 1991).
29. R. Morriss, *The Royal Dockyards during the Revolutionary and Napoleonic Wars* (Leicester, 1983), pp. 74–83.
30. The information in this paragraph comes from some excellent regional studies: Goodman, *Spanish naval power, 1569–1665*, pp. 63–104; R. G. Albion, *Forests and seapower. The timber problem of the Royal Navy* (Cambridge, Mass., 1926); P. W. Bamford, *Forests and French sea power, 1660–1789* (Toronto, 1956), pp. 15–27, 70–91, Phillips, *The founding of Russia's navy*, p. 121. For an interesting example of the English timber trade, see B. Tyson, "Oak for the navy: a case study, 1700–1703", *Transactions of the Cumberland and Westmoreland Antiquarian and Archaeological Society*, lxxxvii (1987), pp. 117–26.
31. Merino Navarro, *La armada española*, pp. 192–220.
32. Bamford, *Forests and French sea power*, pp. 58–67.
33. Phillips, *The founding of Russia's navy*, p. 121.
34. For changing views on the competence of the British timber administration, compare Albion, *Forests and Sea Power*, p. 286 and succeeding chapters, with R. J. B. Knight, "New England forests and British seapower: Albion revised", *American Neptune*, xlvi (1986), pp. 221–9 and Lambert, *The last sailing battlefleet*, pp. 108–17. For a comparison of the French contracting system, see Bamford, *Forests and French sea power*, pp. 32–8. See also B. Pool, *Navy Board contracts, 1660–1832* (London, 1966). Pool also takes a poor view of the Navy Board's contracting capabilities, but the standards he is applying in his judgement are not explicit, e.g. p. 108.
35. J. J. Malone, *Pine trees and politics: the naval stores and forest policy in colonial New England, 1691–1775* (Seattle, Wash., 1964); P. Otterness, "The New York naval stores project and the transformation of the poor Palatines, 1710–1712", *New York History*, April 1994, pp. 133–56.
36. J. Harbron, *Trafalgar and the Spanish navy* (London, 1988), pp. 17, 52–3; Merino Navarro, *La armada española*, pp. 182–5, 352. The Portuguese also built battleships in Brazil.
37. J. Mathieu, *La construction navale royale à Québec, 1739–1759* (Québec, 1971), pp. 55–9, 68, 101–5.
38. D. A. Baugh, *British naval administration in the age of Walpole* (Princeton, NJ, 1965), pp. 256–7.
39. B. Lavery, *The ship of the line*, 2 vols (London, 1983), vol. 1, p. 189.
40. Phillips, *The founding of Russia's navy*, p. 65.

41. The best single essay on this subject is J. Pritchard, "From shipwright to naval constructor: the professionalization of the 18th century French naval shipbuilders", *Technology and Culture* xxix (1987), pp. 1–25. For a more traditional interpretation of the contribution of science to government and, by implication, seapower, see J. E. King, *Science and rationalism in the government of Louis XIV, 1661-1683* (Baltimore, Md., 1949), pp. 106–8, 141–2, 181–4.
42. Phillips, *The founding of Russia's navy*, p. 127.
43. H. A. Baker, *The crisis in naval ordnance* (London, 1983). See also H. Tomlinson, *Guns and government* (Woodbridge, 1979). On the supply of gunpowder in Britain, see J. West, *Gunpowder, government and war in the mid-eighteenth century* (Woodbridge, 1991). J. P. Pupye & van der M. Hoeven (eds), *The arsenal of the world. The Dutch arms trade in the seventeenth century* (Amsterdam, 1996) is useful to give an impression of the extent of the Dutch trade, but does not analyse its significance or decline.
44. J. P. Merino Navarro, "Graving docks in France and Spain before 1800", *Mariner's Mirror*, lxxi (1985), 35–7.
45. Merino Navarro, *La armada española*, p. 343.
46. See Baugh, *British naval administration in the age of Walpole*; Morriss, *The Royal Dockyards during the Revolutionary and Napoleonic Wars*; R. J. B. Knight, *The Royal Dockyards in England at the time of the American War of Independence* (unpublished PhD, University of London, 1972); M. Accera, "Rochefort: l'arsenal, l'eau et les vaisseaux", in M. Accera, J. Merino & J. Meyer, *Les marines de guerres européenes xvii-xviiie siècle* (Paris, 1985), pp. 51–61. The question of the efficiency and effectiveness of yards is still a matter urgently in need of examination. The most recent work on the British yards, J. M. Haas, *A management odyssey: the Royal Dockyards, 1714-1914* (London, 1994), unfortunately looks at the issue as a matter of progress towards a Taylorist ideal, broadly achieved after 1886, and relies heavily on evidence of the eighteenth century interpreted through nineteenth-century parliamentary commissions of inquiry. More work needs to be done exploring ideas of performance against contemporary needs and comparative organizational approaches. Work on dockyard organization outside of Britain, Spain and France also needs to be developed to make any meaningful comparison.
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48. G. Raven, "That expensive asset: a short history of Netherlands naval personnel", *Revue Internationale d'Histoire Militaire*, lviii (1984), p. 168. These figures are broadly similar to those quoted in P. C. Van Royen, "Manning the merchant marine: the Dutch maritime labour market about 1700", *International Journal of Maritime History*, I (1989), pp. 1–28.
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50. J. Meyer, "Gens de mer en Mediterranée au XVII siècle: la France et l'Espagne, essai de comparison", in R. Ragosta (ed.), *Le genti del mare Mediteraneo*, 2 vols (Naples, 1981), vol. 2, p. 907; *idem*., *Colbert*, p. 220.
51. The reforms can be followed in E. L. Asher, *The resistance to the maritime classes. The survival of feudalism in the France of Colbert* (Berkeley, Calif., 1960), pp. 5–14.
52. P. W. Bamford, "French shipping in Northern European trade, 1660–1789", *Journal of Modern History*, xxvi (1954), pp. 207–19.
53. J. S. Bromley, "Le fonctionnement des classes maritimes, 1689–1713", in *idem*., *Corsairs and navies, 1660–1760*, pp. 121–37, especially pp. 121–5.
54. J. S. Pritchard, "The pattern of French colonial shipping to Canada before 1760", *Revue Française d'Histoire d'Outre-Mer*, lxiii (1976), pp. 189–210, especially p. 201.
55. T. J. A. Le Goff, "Problèmes de recrutement de la marine française pendant la Guerre de Septs Ans", *Revue Historique*, cclxxxiii (1990), pp. 208–33.
56. D. J. Starkey, "War and the market for seafarers in Britain", in L. R. Fischer & H. W. Nordvik, *Shipping and trade, 1750–1950: essays in international maritime economic history* (Pontefract, 1990), pp. 25–39.
57. D. E. Robinson, "Secret of British power in the age of sail: Admiralty records of the coasting fleet", *American Neptune*, lxviii (1988), pp. 5–21.
58. The problems of calculating the proportion of volunteers on ships and the whole issue of the press is discussed in N. A. M. Rodger, *The wooden world: an anatomy of the Georgian navy* (London, 1986), pp. 145–82.
59. G. Hughes, "The Act for the Increase and Encouragement of Seamen, 1696–1710. Could it have solved the Royal Navy's manning problem?' in P. Le Fevre (ed.), *Guerres maritimes, 1688–1714* (Vincennes, 1996), pp. 25–33. On schemes to improve the manning of the fleet, see J. S. Bromley (ed.), *The manning of the Royal Navy: selected public pamphlets, 1693–1873* (London, 1974).
60. M. Lewis, *The navy of Britain. A historical portrait* (London, 1948), pp. 308–21.
61. Meyer, "Gens de mer en Mediterranée", pp. 931–3.
62. M. S. Anderson, "Great Britain and the growth of the Russian navy in the eighteenth century", *Mariner's Mirror*, lxii (1956), p. 143.
63. Meyer, "Gens de mer de Mediterranée", p. 907; Merino Navarro, *La armada española*, pp. 83–8.
64. Vauban's memorandum can be read in translation in G. Symcox (ed.), *War, diplomacy and imperialism, 1618–1763* (New York, 1974), pp. 236–43, which also cites the printed French source.
65. The best exponent of the view of the English way of warfare is Daniel Baugh, whose essays have done much to shape views. See his "Great Britain's blue water policy, 1689–1815", *International History Review*, x (1988), pp. 33–58; "Maritime strength and Atlantic commerce. The uses of a 'grand maritime empire'", in L. Stone (ed.), *An imperial state at war. Britain from 1689 to 1815* (London, 1994), pp. 185–223.
66. P. Villiers, "Marin de Colbert ou marine de Seignelay. Victoire de Barfleur et progress technique", in *Guerres Maritimes, 1688–1714* (Vicennes, 1996), pp. 173–92.
67. B. Lavery (ed.), *The line of battle. The sailing warship, 1650–1840* (London, 1992), p. 126.
68. J. Boudriot, "L'évolution de la fregate dans la marine française, 1660–1850", in Howse *Five hundred years of nautical science*, pp. 229–40.
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71. The best study is by M. Verge-Franceschi, *Marine et education sous l'Ancien Régime* (Paris, 1991). On "les bleus" see J. Aman, *Les officiers bleus dans la marine française au xviiie siècle* (Geneva, 1976). The senior officers are discussed in M. Verge-Francheschi, "Les officiers généreaux de la Marine Royale (1669–1774)", *Revue Historique*, cclxxviii (1987), pp. 335–59.
72. Merino Navarro, *Armada española*, pp. 34–5.
73. For a useful description of this see N. Tracy (ed.), *Naval warfare in the age of sail* (London, 1990); H. Grainer, "La pensée navale française au XVIIIe siècle", in H. Coutau-Bégarie (ed.), *L'évolution de la pensée navale* (Paris, 1993), vol. 3.
74. A. T. Mahan, *The influence of sea power upon history, 1660-1783* (Boston, Mass., 1890), pp. 9–11, 179, 211, 266–9, 271, 289, 455, 474–5, 481–97.
75. M. Depeyre, "Père Paul Hoste–fondateur de la pensée navale moderne", in Coutau-Bégarie, *L'évolution de la pensée navale*, vol. 1, pp. 57–78.

Chapter Six

1. Details of the campaign can be found in E. B. Powley, *The naval side of King William's war* (London, 1972).
2. The most accessible account of the battle is in Powley, *King William's war*, pp. 130–47.
3. D. G. Pilgrim, *The uses and limitations of French naval power in the reign of Louis XIV: the administration of the Marquis de Seignelay, 1683-1690* (unpublished PhD, Brown University, Providence, RI, 1969), pp. 365–6.
4. On Tourville's experience and approach to naval war, see E. Taillemite & P. Guillaume, *Tourville et Beveziers* (Paris, 1992).
5. For such a view see W. L. Clowes (ed.), *The Royal Navy. A history from the earliest times to 1900*, 7 vols (London, 1897–1902), vol. 2, p. 332; P. Padfield, *Tides of empire: decisive naval campaigns in the rise of the West*, 2 vols (London, 1982), vol. 2, pp. 124–5.
6. Taillemite & Guillaume, *Tourville et Beveziers*, pp. 20–1; P. Aubrey, *The defeat of James Stuart's armada, 1692* (Leicester, 1979), pp. 61–74.
7. J. A. Johnston, *Parliament and the Navy, 1688-1714* (unpublished PhD, University of Sheffield, 1968), pp. 79, 319–45; G. Symcox, *The crisis of French seapower, 1688-1697: from guerre d'escadre to the guerre de course* (The Hague, 1974), pp. 103–7.
8. J. Coad, *The Royal Dockyards, 1690-1815: architecture and engineering works of the sailing navy* (Aldershot, 1989), pp. 7–9.
9. For Tourville's situation see, Taillemite & Guillaume, *Tourville et Beveziers*, pp. 29–33; P. Villiers, "Marine de Colbert ou marine de Seignelay. Victoire de Barfleur et progress technique", in *Guerres maritimes (1688-1713)* (Vincennes, 1996), pp. 173–92. The best account of the battle is in Aubrey, *The defeat of James Stuart's armada*, pp. 77–111.

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11. E. Otero Lana, *Los corsarios españoles durante la decadencia de los Austrias: el corso español del Atlantico peninsular en el siglo xvii (1621-1697)* (Madrid, 1992), pp. 53–5, 64–5, 119, 125, 222–9.
12. W. R. Meyer, "English privateering in the war of 1688–1697", *Mariner's Mirror*, lxvii (1981), pp. 259–72; J. LePelley, "The privateers of the Channel Islands, 1688–1713", *Mariner's Mirror*, xxx (1944), pp. 22–37; J. S. Bromely, "The Channel Island privateers in the War of Spanish Succession", in *Corsairs and navies* (London, 1987), pp. 339–87.
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16. *Ibid*., p. 292; P. Villier, "La guerre de course en France de Louis XIV à Napoleon 1er", *Marine et technique au XIXe siècle* (Paris, 1995), pp. 98–9; J. S. Bromley, "The Jacobite privateers in the Nine Years War", in *Corsairs and navies*, pp. 139–66.
17. C. J. Kulsrud, *Maritime neutrality to 1780* (Boston, 1936), pp. 234–9, 310–16; N. Tracy, *Attack on maritime trade* (London, 1991), p. 35.
18. T. J. Denman, *The political debate over strategy, 1689-1712* (unpublished PhD, University of Cambridge, 1985), pp. 61–8; E. Taillemite, "Un marine pour quoi faire? La stratégie navale de Louis XIV", *Guerres Maritimes (1688-1713)* (Vincennes, 1996), pp. 97–8.
19. W. T. Morgan, "The British West Indies during King William's War (1689–1697)", *Journal of Modern History*, ii (1930), pp. 378–409; N. Moses, "The British Navy in the Caribbean, 1689–1697", *Mariner's Mirror*, lii (1966), pp. 13–40. Reports of the operations can be found in J. W. Fortescue (ed.), *Calendar of state papers colonial* (hereafter CSPC), 1689–92 (London, 1901); 1693–6 (London, 1903).
20. Taillemite & Guillaume, *Tourville et Beveziers*, pp. 34–5.
21. The growing economic crisis in England after 1692 can be traced in D. W. Jones, *War and economy in the age of William III and Marlborough* (Oxford, 1988), pp. 37, 131, 224–5.
22. W. A. Aitken (ed.), *The conduct of the Earl of Nottingham* (New Haven, Conn., 1941), p. 123. Nottingham's account is also useful for many other aspects of naval events, 1690–2.
23. Symcox, *The crisis of French seapower*, pp. 143–50; Villiers, "Marine de Colbert ou marine de Seignelay", p. 194.
24. For the defence of Dunkirk, see B. Cros, "Dunkerque au temps de Louis XIV", *Chasse-Marée*, lciii (1995), pp. 30–40, especially, p. 39. For the development of English coastal attacks, see A. N. Ryan, "William III and the Brest fleet in the Nine Years War", in R. M. Hatton, & J. S. Bromley (eds), *William III and Louis XIV* (Liverpool, 1968).
25. Narratives of these operations can be found either in Clowes, *The Royal Navy*, vol. 2, pp. 362–5, 471–95, or Roncière, *Histoire de la marine française*, vol. 6, pp. 149–59, 199–231.
26. Professor Christian Buchet, who has done the most detailed recent study on warfare in the Caribbean, believes that the years 1689–97 witnessed a determined attempt to conquer French territory across the globe. This may well have been an ambition, but it must be set within the very limited and ephemeral resources that were available. Given the priorities of the English government and the resources it had, it was a strategy that existed more in rhetoric than reality. See C. Buchet, *La lutte pour l'espace*

Caribe et la façade Atlantique de l'Amerique Centrale du Sud, 1672-1763, 2 vols (Paris, 1991), vol. 1, pp. 195-7.

27. Fortescue, *CSPC* (1693-6), item 48, William III to Sir William Phips, 2 February 1693; item 545, Phips to Nottingham, 11 September 1693.
28. Roncière, *Histoire de la marine française*, vol. 6, pp. 291-5; G. S. Graham, *The empire of the North Atlantic. The maritime struggle for North America* (Oxford, 1958), pp. 66-7, 76-81.
29. M. A. Thomson, "Louis XIV and William III, 1689-1697", *English Historical Review*, lxxvi (1961), pp. 37-58.
30. For the Partition Treaties and the English reaction to them see M. A. Thompson, "Louis XIV and the origins of the War of Spanish Succession", in R. M. Hatton & J. S. Bromley (eds), *William III and Louis XIV* (Liverpool, 1968), pp. 140-61; *idem*, "Self-determination and collective security as factors in English and French foreign policy, 1689-1718", in *ibid*., pp. 271-86; G. C. Gibbs, "The revolution in foreign policy", in G. Holmes (ed.), *Britain after the Glorious Revolution* (London, 1969), pp. 59-79.
31. Buchet, *La lutte pour l'espace Caribe*, vol. 1, p. 208.
32. For a fuller discussion of English policy at this time see Denman, *The political debate over Strategy*, pp. 134-74
33. For the fullest account of this strategy, see J. B. Hattendorf, *England in the War of Spanish Succession. A study of the English views and conduct of Grand Strategy, 1702-1712* (New York, 1987), *passim*.
34. W. G. Bassett, *The Caribbean in international politics, 1670-1707* (unpublished PhD, University of London, 1934), pp. 456-69.
35. The French fleet totalled about 50 ill-equipped ships. The English fleet numbered about 130 line. Many were not ready for sea, but the French assumed, fairly accurately, that about 66 allied line were ready for the Channel. Rooke's Channel fleet numbered 64 line (49 English and 15 Dutch) in July 1701. Even this estimate gave them little hope for a Channel campaign. See Roncière, *Histoire de la marine francaise*, vol. 6, p. 310; R. D. Merriman, *Queen Anne's navy: documents concerning the administration of the navy of Queen Anne, 1702-1714* (London, 1961), p. 363; O. Browning, *Journal of Sir George Rooke, Admiral of the Fleet, 1700-1702* (London, 1897), 19 July 1701. This version of Rooke's journal is flawed in many places and should be used with great care.
36. R. C. Anderson, *Naval wars in the Levant, 1559-1853* (Liverpool, 1952), pp. 194-235.
37. Taillemite, "Un marine pour quoi faire?", p. 99.
38. An account of Chateau-renault's expedition can be found in N. M. Crouse, *The French struggle for the West Indies, 1665-1713* (New York, 1943), pp. 256-60.
39. The best modern account of the operation is J. Barreau, "La campagne de 1703", *Bulletin de la Société de la Guadaloupe*, xxv (1975), pp. 53-82.
40. C. Headlam (ed.), CPSC (1702-3), item 192, Admiralty to the Queen, 16 January 1703.
41. H. Kamen, "The destruction of the Spanish silver fleet at Vigo in 1702", *Bulletin of the Institute of Historical Research*, xxxix (1966), pp. 165-73.
42. The possibility of an attack upon Gallicia in 1739 was one factor that held up planning for an attack upon Spanish America. The belief that Vigo was critical to the successful conclusion of the Methuen Treaties with Portugal in May 1703 has been a commonplace since A. T. Mahan, *The influence of sea power upon history, 1660-1783* (Boston, Mass. 1890), p. 207.
43. F. S. Russell (ed.), *The Earl of Peterborough and Monmouth (Charles Mordaunt): a memoir*, 2 vols (London, 1887), vol. 1, pp. 1422-1442, Peterborough to Mr Locke, 27January 1703.

44. The Methuen treaties and the Portuguese negotiations can be followed in A. D. Francis, *The first Peninsula War* (London, 1975), pp. 59–82.
45. Mahan, *The influence of sea power upon history*, pp. 211–12; Roncière, *Histoire de la marine française*, vol. 6, p. 363.
46. On Louis' attitude to the fleet in 1703, see Roncière, *Histoire de la marine française*, vol. 6, p. 345.
47. H. F. Stacke, "The capture of Barcelona, 1705. A little known combined operation", *Royal United Services Institution*, cccclcviii (1930), pp. 337–46.
48. J. B. Hattendorf, *England in the War of Spanish Succession. A study of the English view and conduct of grand strategy, 1702–1712* (New York, 1987), pp. 115–24.
49. Denman, *The political debate over strategy*, pp. 208–11.
50. R. Harding, "The expeditions to Quebec 1690 and 1711: the evolution of British trans-Atlantic amphibious power", *Guerres Maritime (1688–1713)* (Vincennes, 1996), pp. 19–212; G. S. Graham (ed.), *The Walker expedition to Quebec, 1711* (London, 1953).
51. Roncière, *Histoire de la marine française*, vol. 6, pp. 496–501; H. Kamen *The War of Succession in Spain, 1700–1715* (London, 1969), p. 192.
52. J. S. Bromley, "The Channel Island privateers in the War of Spanish Succession", in *Corsairs and navies*, pp. 339–87, especially pp. 374–87.
53. G. N. Clarke, "War trade and trade war, 1701–1713", *Economic History Review*, I (1927–8), pp. 264–6.
54. W. R. Meyer, "English privateering in the War of Spanish Succession, 1702–1713", *Mariner's Mirror*, lxix (1983), pp. 435–6; D. J. Starkey, *British privateering enterprise in the eighteenth century* (Exeter, 1990), pp. 88–92, 107. On Dampier and the publications related to his and Rodger's voyages, see, C. Lloyd, *William Dampier* (London, 1966), pp. 97–152.
55. The excellent articles by J. S. Bromley provide the best starting point for the study of the relationship between privateering and trade fluctuations. See "Le commerce de la France et la guerre maritime, 1702–1712", in *Corsairs and navies*, pp. 389–406; "The trade and privateering of St Malo during the War of Spanish Succession", in *ibid*., pp. 279–95. For the establishment of French trade in the South Sea, see R. Villalobos, "Contrabando frances en el Pacificio, 1700–1724", *Revista Historia de America*, li (1961), pp. 49–80.
56. Bromley, "The French privateering war", *Corsairs and navies*, pp. 213–41.
57. The best account of Parliament's relationship with the navy is in J. A. Johnson, *Parliament and the navy, 1688–1714* (unpublished PhD, University of Sheffield, 1968). This should be read in conjunction with Denman, *The debate over strategy, 1688–1714* (unpublished PhD, University of Cambridge, 1985).
58. Hattendorf (1987), pp. 256–7.
59. D. Coombs, *The conduct of the Dutch: British opinion and the Dutch alliance during the War of Spanish Succession* (The Hague, 1958), pp. 35–47, 73, 80, 130, 170, 233–372; Clark, "War trade and trade war, 1710–1713".
60. P. Contamine (ed.), *Histoire militaire de la France* (Paris, 1992), vol. 1, p. 531–8.
61. The best account of this is still Johnston, *Parliament and the navy*, *1688–1714*. Mahan, *The influence of seapower upon history*, p. 217.
62. J. Coad, *The Royal Dockyards, 1690–1815: architecture and engineering works of the sailing navy* (Aldershot, 1989).
63. One of the most recent studies, which highlights the congenital fragility of the French royal navy despite all the hopes that had been placed in it and contrary to a great deal of French naval historiography, is D. Dessert, *La Royale: vaisseaux et marine du Roi-Soleil* (Paris, 1996).

64. Studies of the British navy at this time are scarce and rather dated, R. Bourne, *Queen Anne's navy in the West Indies* (New Haven, Conn., 1939), provides a good narrative but does not try to place the events here into the wider context of the war. J. H. Owen, *War at sea under Queen Anne, 1702-1708* (Cambridge, 1938) is an excellent narrative, but only covers part of the war and thus leaves the reader with an incomplete picture. R. D. Merriman, *Queen Anne's Navy* (London, 1961) is good on administration, but does not try to draw any conclusions about the effectiveness or efficiency of that administration.

Chapter Seven

1. R. D. Bourland, *Maurepas and his administration of the French navy on the eve of the War of Austrian Succession (1737-1742)* (unpublished PhD, University of Notre Dame, Ind., 1978), pp. 66-81, 291-4.
2. J. Glete, *Navies and nations. Warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1993), vol. 2, p. 640; J. Israel, *The Dutch Republic: its rise, greatness and fall, 1477-1806* (Oxford, 1995), p. 970; A. C. Carter, *Neutrality or commitment: the evolution of Dutch foreign policy, 1667-1795* (London, 1975), pp. 45–51; J. R. Bruijn, *The Dutch navy in the seventeenth and eighteenth centuries* (Columbia, SC, 1993), pp. 147–53.
3. J. Brewer, *The sinews of power: war, money and the English state, 1688-1783* (London, 1989), pp. 29–42; P. K. O'Brien, "The political economy of British taxation, 1660–1815", *Economic History Review*, 2nd series, xli (1988), pp. 1–32.
4. P. Crowhurst, *The defence of British trade, 1689-1815* (Folkestone, 1977), pp. 45–54.
5. S. Conn, *Gibraltar in British diplomacy in the eighteenth century* (New Haven, Conn., 1942), pp. 34–97.
6. The best overall account is in D. A. Baugh, *British naval administration in the age of Walpole* (Princeton, NJ, 1965). Other good works include J. Coad, *The Royal Dockyards, 1690-1815: architecture and engineering works of the sailing navy* (Aldershot, 1989); *idem*, *Historic architecture of the Royal Navy* (London, 1983); D. G. Crewe, *Yellow Jack and the worm: British naval administration in the West Indies, 1739-1748* (Liverpool, 1993). For an interesting explanation of the destruction of Port Royal in 1692, see G. R. Clark, "Swallowed up", *Earth*, iv (1995), pp. 34–41.
7. B. Lavery, *Ship of the line*, 2 vols (London, 1983), vol. 1, pp. 75–84; A. T. Mahan, *The influence of sea power upon history, 1660-1815* (Boston, 1890; 1918 edn), pp. 241–53; M. Lewis, *The navy of Britain: a historical portrait* (London, 1948), p. 479.
8. J. R. McNeill, *Atlantic empires of France and Spain: Havana and Louisbourg, 1700-1763* (Chapel Hill, NC, 1985), pp. 82-5. The fullest accounts of the building and maintenance of Louisbourg is still J. S. McLennan, *Louisbourg: from its foundation to its fall, 1713-1758* (Macmillan, 1918).
9. P. J. Dousdebes, *Cartagena de Indias: plaza fuerte* (Bogata, 1948); E. N. Dorta, *Cartagena de las Indias: la cuidad y sus monumentos* (Seville, 1951); G. E. Sanders, *The Spanish defense of America, 1700-1763* (unpublished PhD, University of Southern California, 1973), pp. 19–24; McNeill, *Atlantic empires*, pp. 99–104.
10. For the influence of the Board of Trade, see I. K. Steele, *The politics of colonial control: the Board of Trade in colonial administration, 1696-1720* (Oxford, 1968). The Board was an advisory, not an executive

body. After 1721, the board embarked on a number of extensive investigations related to the colonies, which made it a valuable source of information to the government by 1739. See also Brewer, *Sinews of power*, pp. 42–60.

11. G. Lacour-Gayet, *La marine militaire de la France sous le regne de Louis XV* (Paris, 1910; 2nd edn), pp. 33–69. Lacour-Gayet was a convinced "navalist" arguing for the expansion of the French navy when this book was first published in 1901. His views on the ministers must be treated with caution. James Pritchard suggests that it is "silly" to think that the French navy lacked influence at court because it lacked a parliament to articulate political pressure. He argues that the informal networks of influence were more important than the formal organizations of state. This is undoubtedly true, but should not hide the fact that formal organizations provided the forums and rationale for many informal networks. If the court could isolate itself formally from external pressures or groups, it reduced the necessity to communicate, understand and negotiate with them. See J. Pritchard, "The French navy, 1748–1762: problems and perspectives", in R. W. Love, *Changing interpretations and new sources in naval history* (Garland, 1980), p. 151.
12. Bourland, *Maurepas and his administration of the French navy*, pp. 61–8.
13. J. P. Merino, *La armada española en el siglo XVIII* (Madrid, 1981), pp. 18–19.
14. D. D. Aldridge, "The victualling of the British naval expeditions to the Baltic Sea between 1715 and 1727", *Scandinavian Economic History Review*, xii (1964), pp. 1–25; *idem*, "Swedish privateering 1710–1718 and the reaction of Great Britain and the United Provinces", *Course et piraterie* (Paris, 1975).
15. For a narrative of the naval war, see R. C. Anderson, *Naval wars in the Baltic, 1522–1850* (London, 1910; 1969 edn), pp. 134–207. For the British operations, see D. D. Aldridge, *Sir John Norris and the British naval expeditions in the Baltic Sea, 1715–1727* (unpublished PhD, University of London, 1972).
16. M. Martin, "The secret clause in British and Spanish ambitions in Italy, 1712–1731", *European Studies Review*, vi (1976), pp. 407–25; H. W. Richmond, "The expedition to Sicily, 1718, under Sir George Byng", *Journal of the Royal United Services Institution*, lxxx (1909), pp. 1135–52; J. B. Hattendorf, "Admiral Sir George Byng, and the Cape Passaro incident, 1718: a case study in the use of the Royal Navy as a deterrent", *Guerres et paix* (Vincennes, 1987), pp. 19–38. The landing at Vigo Bay has never been studied in any detail.
17. L. F. Horsfall, *British relations with the Spanish colonies in the Caribbean, 1713–1739* (unpublished PhD, University of London, 1936), pp. 188–93.
18. The best overall narrative of Anglo-Spanish relations in the West Indies is R. Pares, *War and trade in the West Indies, 1739–1763* (Oxford, 1936). The best detailed study can be found in P. L. Woodfine, *Britannia's glories. The Walpole Ministry and the 1739 War with Spain* (Woodbridge, 1998). See also P. Woodfine, "The Anglo-Spanish war of 1739", in J. M. Black (ed.), *The origins of war in early modern Europe* (Edinburgh, 1987), pp. 184–209; K. Wilson, "Empire, trade and popular politics in mid-Hanoverian Britain: the case of Admiral Vernon", *Past and Present*, cxxi (1988), pp. 74–109. The general development of British foreign policy and the emergence of a popular identity of Britain as a global power can be traced in J. Black, *America or Europe*? (London, 1998).
19. The best sources for public opinion on this matter can be found in *The Gentleman's Magazine*, *The Political State of Great Britain*, the newspapers and the abundant pamphlet literature. The problem of policing the thousands of miles of coastline can be seen in B. Torres Ramirez, *La armada de Barlovento* (Seville, 1981), pp. 197–209; L. W. Newton, "Caribbean contraband and Spanish retaliation:

the Count of Clavijo and Dutch interlopers, 1725–1727", *Mededelingen Nederlandse Vereniging Voor Zeegeschiednenis*, xxix (1974), pp. 22–7.

20. No detailed study of this operation has been carried out, but the correspondence can be found in PRO, SP42/84. The importance attached to Norris' role is suggested by the fact that he was made co-plenipotenary with the diplomat Tyrawley for this expedition.
21. A. Béthencourt Massieu, *Patino en la politica international de Felipe V* (Valladolid, 1954), p. 17.
22. Bourland, *Maurepas and his administration of the French navy*, pp. 61–9.
23. J. Black, *Natural and necessary enemies: Anglo-French relations in the eighteenth century* (Athens, Ga., 1986), pp. 22–35.
24. BL Add. Ms 19036, Review of the French and Spanish Forces, June 1738; W. Cobbett, *Parliamentary history of England*, 35 vols (London, 1806–20), vol. 11, p. 419, 5 February 1739/40.
25. An excellent, comprehensive narrative of this war is by H. W. Richmond, *The navy in the war of 1739-1748*, 3 vols (Cambridge, 1922). Additional information can be found in R. H. Harding, "Sir Robert Walpole and the conduct of the war with Spain, 1739–1741", *Historical Research*, xl (1987), pp. 299–320; *idem*, *Amphibious warfare in the eighteenth century: the British expedition to the West Indies, 1740-1742* (Woodbridge, 1991). On Anson's voyage around the world, see R. Walter & B. Robbins (G. Williams ed.), *A voyage round the world in the years MDCCXL, I, II, III, IV* (Oxford, 1974).
26. Good accounts of the Battle of Toulon can be found in Richmond, *The navy in the war of 1739-1748*, vol. 2, pp. 1–57; R. F. Mackay, *Admiral Hawke* (Oxford, 1965), pp. 25–34.
27. Lavery, *Ship of the line*, vol. 1, pp. 87–94.
28. Richmond, *The navy in the war of 1739-1748*, vol. 2, pp. 63–85; J. Colin, *Louis XV et les Jacobites: le projet de débarquement en Angleterre de 743-1744* (Paris, 1901); F. McLynn, *France and the Jacobite rising of 1745* (Edinburgh, 1981), pp. 21–5.
29. Copies of most of the pamphlets relating to the Battle of Toulon can be found in the Ministry of Defence Library in London. On Mostyn, see *The minutes of the court martial held on board H. M. Ship the Lennox in Portsmouth harbour on 31 January last* (London, 1745) and [E. Vernon] *An enquiry into the conduct of Captain M–n, being the remarks of the minutes of the court martial and other incidental matters humbly addressed to the Hon. House of Commons, by a sea officer* (London, 1745). The relationship between parliament and the evolution of naval policy in the 1740s is still in need of a full and serious study.
30. The actual contribution of the navy to the defence of Britain during the rebellion is still a matter of debate. See F. McLynn, "Seapower and the Jacobite rising of 1745", *Mariner's Mirror*, lxvii (1981), pp. 163–72; J. Black, *Culloden and the '45* (Gloucester, 1990), pp. 119–27.
31. For the decline of the alliance, see H. Dunthorne, *The maritime powers, 1721-1740: a study of Anglo-Dutch relations in the age of Walpole* (New York, 1986), particularly pp. 307–27.
32. E. Taillemite, "Une bataille de l'Atlantique au XVIIIe siècle: la Guerre de Succession d'Autriche, 1744–1748", *Guerres et Paix* (Vincennes, 1987), pp. 131–48; Richmond, *The navy in the war of 1739-1748*, vol. 3. p. 244.
33. An excellent study of this operation is J. Pritchard, *Anatomy of a naval disaster: the 1746 French expedition to North America* (Montreal, 1995).
34. Richmond, *The navy in the war of 1739-1748*, vol. 3, pp. 79–81.
35. Mackay, *Admiral Hawke*, pp. 68–88.
36. D. G. Crewe, *British naval administration in the West Indies, 1739-1748* (Liverpool, 1978).

37. R. Pares, "The manning of the navy in the West Indies, 1702–63", *Transactions of the Royal Historical Society*, xx (1937), pp. 31–60; D. M. Clarke, "The impressment of seamen in the American colonies", in *Essays in colonial history presented to Charles McLean Andrews by his students* (New Haven, Conn., 1931), pp. 198–224; J. Lax & W. Pencak, "The Knowles riot and the crisis of the 1740s in Massachusetts", *Perspectives of American History*, x (1976), pp. 161–214; C. E. Swanson, "The competition for American seamen during the war of 1739–1748", *Proceedings of the Canadian Society for Eighteenth Century Studies*, 1982, pp. 119–29.
38. J. A. Devine, *The British North American colonies in the war of 1739-1748* (unpublished PhD, University of Virginia, 1968), pp. 307–38.
39. For a Spanish view of the effectiveness of Spanish military activity in the Americas, see, J. Marchena Fernandez, *Oficiales y soldades en el ejercito de America* (Seville, 1983), particularly, pp. 182–8. See also J. C. M. Oglesby, "Spain's Havana squadron and the preservation of the balance of power in the Caribbean, 1740–48", *Hispanic American Historical Review*, xlix (1969), pp. 473–88; *idem*, "England versus Spain in America, 1739–48", *Canadian Historical Association: Historical Papers*, 1970, pp. 147–57.
40. The best narrative of the war in the East Indies is still Richmond, *The war of 1739-1748*, vol. 3, pp. 176–225.
41. The feeling that the war had not been conducted well by the administration or the officer corps is reflected in the visitation to the dockyards that took place in 1749 and the attempts to bring Royal Navy officers under more consistent discipline while not employed afloat. See J. Haas, "The Royal Dockyards: the earliest visitations and reform, 1749–1778", *Historical Journal*, xiii (1970), pp. 191–215, especially, p. 196; *idem*, *A management odyssey: the Royal Dockyards, 1714-1914* (London, 1994), p. 18; D. Erskine (ed.), *Augustus Hervey's journal* (London, 1953), pp. 78–84. However, much more work is needed on this. Periodic reviews of the dockyards had taken place since the 1670s. Whether Sandwich's visitation had more effect or different purposes is unclear. I am grateful to Dr Peter Le Fevre for showing me the evidence of these in the PRO, Adm. 106/356, Adm. 106/3542 and Adm. 106/307. For an excellent study of the wider political impact of war on British opinion, see K. Wilson, *The sense of the people: politics, culture and imperialism in England, 1715-1785* (Cambridge, 1995), pp. 140–78.
42. D. A. Baugh, *British naval administration in the age of Walpole* (Princeton, NJ, 1965), *passim*. See also G. W. Morgan, *The impact of war on the administration of the army, navy and ordnance in Britain, 1739-1754* (unpublished PhD, University of Leicester, 1977).
43. Richmond, *The war of 1739-1748*, vol. 3, pp. 1–13, 38–42, 78–116.
44. N. A. M. Rodger, *The insatiable earl: a life of John Montagu, 4th Earl of Sandwich* (London, 1993), pp. 21–39.
45. C. E. Swanson, *Predators and prizes: American privateering and imperial warfare, 1739-1748* (Columbia, SC, 1991). Compare Swanson's figures, based upon press reports, with the official British reports in D. Starkey, *British privateering enterprise in the eighteenth century* (Exeter, 1990), p. 137.
46. P. Crowhurst, *The defence of British trade, 1689-1815* (Folkestone, 1977), p. 125.
47. In concluding his narrative of the war, Richmond suggested that the war was a failure caused by poor preparation and strategic direction from the various ministries. In doing so, he underestimated the difficulties facing ministers and administrators who had absorbed the "blue water" propaganda, but who had not yet the experience of warfare on this geographical scale. See Richmond, *The navy in the war of 1739-1748*, vol. 3, pp. 251–2. See also H. W. Richmond, "English strategy in the War of

Austrian Succession", *Journal of the Royal United Services Institution*, lxiv (1919), pp. 246–54. In this article he emphasized the baneful impact of a division in strategic thinking between maritime and continental strategies, but does not note that the mechanics for combining the strategies had to be worked out by trial and error.

Chapter Eight

1. G. Lacour-Gayet, *La marine de la France sous le regne de Louis XV* (Paris, 1901; 1910 edn), p. 222; J. Pritchard, *Louis XV's navy, 1748-1762: a study of organisation and administration* (Québec, 1987), pp. 126–7.
2. See D. Roberts (ed.), *Eighteenth century shipbuilding: remarks on the navies of the English and Dutch by Blaise Ollivier (1737)* (Rotherfield, 1992). French frigate design shifted after the war towards larger ships with heavy guns, which was again followed by the British. French frigate design can be traced in J. Boudriot, *The history of the French frigate, 1650-1850* (Rotherfield, 1993).
3. M. Verge-Franchesci, *Marine et education sous l'Ancien Règime* (Paris, 1991), pp. 231–3.
4. C. Nordman, "L'essor de la flotte de Guerre Suedo-Finlandaise au xviiie siècle", in A. Lottin et al., *Les hommes et la mer dans l'Europe du Nord-Ouest* (Paris, 1986), p. 356.
5. T. J. A. Le Goff, "Problèmes de recrutement de la marine française pendant la Guerre de Sept Ans", *Revue Historique*, cclxxxiii (1990), pp. 205–33, especially, pp. 206–7.
6. J. Pritchard, *Louis XV's navy*, p. 138.
7. J. Glete, *Navies and nations. Warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1992), vol. 1, p. 264.
8. *Ibid*., p. 266; J. Merino Navarro, *La armada española en el siglo XVIII* (Madrid, 1981), pp. 50–2, 353.
9. B. Lavery, *The ship of the line*, 2 vols (London, 1983), vol. 1, pp. 96–102; R. Gardiner, *The first frigates. Nine pounder and twelve pounder frigates, 1748-1815* (London, 1992), pp. 10–35. The biographies of Anson are now rather dated and tend to credit him with most of the achievements of the navy during the Seven Years War. See J. Barrow, *The life of George Lord Anson* (London, 1839), pp. 142–227, 392–400; W. V. Anson, *The life of Lord Anson* (London, 1912), pp. 112–23, 184–5. There is no reason to believe that Anson's role was not central to the organization and effectiveness of the navy-indeed it may have been greater than the partisans of William Pitt were prepared to admit-but in the light of recent research on the administration of the navy in the Seven Years War, a new biography is badly needed. See also R. Middleton, "Pitt, Anson and the Admiralty, 1757-1761", *History* lv (1970), pp. 189–8.
10. Glete, *Navies and nations*, vol. 2, pp. 565, 578.
11. The fullest narrative of the war at sea is still J. S. Corbett, *England and the Seven Years War: a study in combined strategy*, 2 vols (London, 1907).
12. This episode has been examined in some detail by B. Tunstall, *Admiral Byng and the loss of Minorca* (London, 1928) and D. Pope, *At twelve Mr Byng was shot . . .* (London, 1962). Both authors place Byng's death into the general context of the political anxiety regarding the performance of the Royal Navy officer corps since 1744 and come to largely the same conclusions. Tunstall, particularly, is critical of the administrative support for Byng's squadron. More research is needed on this matter and other courts

martial that occurred between 1744 and 1758 to understand more fully the professional context of Byng's execution.

13. J. W. Brown, *British privateering during the Seven Years War* (unpublished MA, University of Exeter, 1978), p. 51; J. G. Lyfon, "Privateering becomes a business: New York in the mid-eighteenth century", *Course et piraterie*, 2 vols (Paris, 1975), vol. 1, pp. 492–3; J. Delumeau, "La guerre de course française sous l'Ancien Règime", *ibid*., pp. 283–4.

14. The best description of the problem is in R. Pares, *Colonial blockade and neutral rights 1739-1756* (Oxford, 1938), pp. 180–224, 242–85. On the armed neutrality of Sweden and Denmark, see *ibid*., pp. 297–309.

15. D. J. Starkey, *British privateering enterprise in the eighteenth century* (Exeter, 1990), pp. 162–87.

16. T. J. A. Le Goff, "Problèmes de recrutement de la marine française pendant la Guerre de Sept Ans", *Revue Historique*, cclxxxiii (1990), pp. 205–33; *idem*, "Les gens de mer devant le système des classes (1755–1763), resistance ou passivité?", in Lottin et al., *Les hommes et la met dans l'Europe de Nord-Ouest*, pp. 463–79. British historians have tended to look at the cartels from the point of view of their effectiveness in assisting the manning of the navy. See O. Anderson, "The establishment of British supremacy at sea and the exchange of naval prisoners of war, 1689–1783", *English Historical Review*, lxxv (1960), pp. 77–89, especially pp. 87–9. Research on the relative impact of cartels across belligerents would be very valuable.

17. S. F. Gradish, *The manning of the navy in the Seven Years War* (London, 1980), *passim*.

18. C. R. Middleton, *The administration of Newcastle and Pitt: the Departments of State and the conduct of the war, 1754-1760 with particular reference to the campaigns in North America* (unpublished PhD, University of Exeter, 1968).

19. The best general study of Pitt's ministry is R. Middleton, *The bells of victory: The Pitt-Newcastle ministry and the conduct of the Seven Years War, 1757-1762* (Cambridge, 1985). On the financial measures, see pp. 88–91, 114–15. Also well worth reading in this context is E. F. S. Frazer, *The Pitt-Newcastle coalition and the conduct of the Seven Years War* (unpublished DPhil., University of Oxford, 1976).

20. Journals of the House of Commons, xxvii (1755–6), p. 316; xxviii (1757–62), p. 328.

21. L. Kennett, *The French armies of the Seven Years War* (Durham, NC, 1967), pp. 77–8.

22. W. Kent Hackman, *British military expeditions to the coast of France, 1757-1761* (unpublished PhD, University of Michigan, 1969), *passim*; *idem*, "The British raid on Rochefort, 1757", *Mariner's Mirror*, lxiv (1978), pp. 263–75.

23. A. J. Marsh, "The taking of Gorée, 1758", *Mariner's Mirror*, li (1965), pp. 117–30; J. Hitsman & C. Bond, "The assault landing at Louisbourg, 1758", *Canadian Historical Review*, xxxv (1954), pp. 314–30; M. Smelser, *The campaign in the Sugar Islands, 1759* (Chapel Hill, NC, 1955), *passim*; J. Barreau, "La campagne de 1759", *Bulletin de la Société d'Histoire de la Guadeloupe*, xxvii (1976).

24. D. Syrett, "The methodology of British amphibious operations during the Seven Years and American Wars", *Mariner's Mirror*, lviii (1972), pp. 269–80; A. W. H. Pearsall, "Naval aspects of the landings on the French coast, 1758", in N. A. M. Rodger (ed.), *Naval miscellany* (London, 1984), vol. 5, pp. 207–41.

25. For an overview which notes the misleading influence of Mahan on amphibious warfare, but, as the title suggests, overemphasizes the landing phase of operations, see A. Vagts, *Landing operations: strategy, psychology, tactics, politics, from antiquity to 1945* (Harrisburg, 1946), particularly pp. 1–7, 281–302. See also R. H. Harding, *Amphibious warfare in the eighteenth century. The British expedition to the West Indies, 1740-1742* (Woodbridge, 1991).

26. For the naval events of 1759, see Corbett, *England and the Seven Years War*, vol. 2, pp. 1–70; G. Marcus, *Quiberon Bay: the campaign in home waters, 1759* (London, 1960).
27. See Marcus, *Quiberon Bay*, pp. 178–9.
28. J. Bosher, "Financing the French navy in the Seven Years War: Beaujon, Goossens et Compagnie in 1759", *Business History*, xxviii (1986), pp. 115–33.
29. This operation was planned to unite the Brest and Rochefort squadron, but once again co-ordination proved difficult and only the Brest squadron got out. See C. Buchet, *La lutte pour l'espace Caribe et la facade Atlantique de l'Amerique Centrale du Sud, 1672-1763*, 2 vols (Paris, 1991), vol. 1, pp. 407–10.
30. B. Holbroke, "The siege and capture of Belle-Isle, 1761", *Journal of the Royal United Services Institution*, xliii (1899), pp. 160–83, 520–34.
31. D. Syrett, *The siege and capture of Havana, 1762* (London, 1970), *passim*.

Chapter Nine

1. J. Glete, *Navies and nations. Warships, navies and state building in Europe and America, 1500-1860*, 2 vols (Stockholm, 1991), vol. 1, p. 312.
2. *Ibid*.
3. D. A. Baugh, "Great Britain's blue water policy, 1689–1815", *International History Review*, x (1988), pp. 53–8. Baugh develops his argument, suggesting that Britain misunderstood how the foundations of seapower were based on this Atlantic system in "Maritime strength and Atlantic commerce: the uses of 'a grand marine empire' ", in L. Stone (ed.), *An imperial state at war: Britain from 1689-1815* (London, 1994), pp. 185–223.
4. For the problems facing French strategy against Britain, see P. Villiers, *Marine royale, corsaires et trafic dans l'Atlantique de Louis XIV à Louis XVI*, 2 vols (Dunkirk, 1991), vol. 1, pp. 289–302; vol. 2, pp. 748–51.
5. R. C. Anderson, *Naval wars in the Baltic, 1522-1850* (London, 1969 edn), pp. 208–21. Most of the events in this section can be found in this book.
6. C. Nordman, "L'essor de la flotte de Guerre Suedo-Finlandaise au xviiie siècle", in A. Lottin et al. (eds), *Les hommes et la mer dans l'Europe du Nord-Ouest* (Paris, 1986), p. 354; J. Glete, "Bridge and bulwark: the Swedish navy and the Baltic, 1500–1809", in G. Rystad, K.-R. Bohme and W. N. Carlsgren (eds), *The Baltic in power politics* (Lund, 1994), vol. 1, pp. 51–3.
7. J. Glete, "The foreign policy of Gustavus III and the navy as an instrument of that policy", in *The war of King Gustavus III and the naval battles of Ruotsinsalmi* (Kotka, 1993), pp. 5–12; A. Vuorenmaa, "King Gustavus III and Russia: the war between Sweden and Russia in Finland, 1788–1790", in *ibid*., pp. 61–73.
8. D. G. Harris, *F. H. Chapman: the first naval architect and his work* (London, 1989), pp. 111–47.
9. *Ibid*.; also V. A. Samoilov, "The development of the Russian fleet in the eighteenth century-ship construction and war technology and a short summary of the events in the war between Russia and Sweden, 1788–1790", in Glete, *The war of King Gustavus III*, pp. 13–27; Anderson, *Naval wars in the Baltic*, pp. 241–93.

10. R. C. Anderson, *Naval wars in the Levant, 1559-1853* (Liverpool, 1952), pp. 308–17.
11. Glete, *Navies and nations*, vol. 1, pp. 305–7.
12. Anderson, *Naval wars in the Levant*, pp. 277–91; W. C. Chapman, "Prelude to Chesme", *Mariner's Mirror*, lii (1966), pp. 61–76. See also M. S. Anderson, "Great Britain and the Russian fleet, 1769–1770", *Slavonic and East European Review*, December 1952, pp. 148–63; *idem*, "Great Britain and the Russo-Turkish war, 1768–1774", *English Historical Review*, xlix (1954), pp. 39–58.
13. M. S. Anderson, "Russia in the Mediterranean, 1788–1791: a little-known chapter in the history of naval warfare and privateering", *Mariner's Mirror*, xlv (1959), pp. 25–35.
14. B. Menning, "Russian military innovation in the second half of the eighteenth century", *War and Society*, ii (1984), pp. 23–41, especially, pp. 34–6.
15. Anderson, *Naval wars in the Levant*, pp. 319–47. For an interesting light showing the continued importance of foreign technical expertise upon the development of Russian seapower and the rout of the Turkish naval forces retreating from Ochakov, see, I. R. Christie, "Samuel Bentham and the Russian Dnieper flotilla", *Slavonic and East European Studies Review*, I (1972), pp. 173–96. See also C. Duffy, *Russia's military way to the West. Origins and nature of Russian military power, 1700-1800* (London, 1981; 1985 edn), pp. 185–9.
16. J. C. Riley, *The Seven Years War and the Old Regime in France. The economic and financial toll* (Princeton, NJ, 1986), pp. 105–18.
17. *Ibid*., *passim*. For the issue of fiscal management alone, see also J. C. Riley, "French finances, 1727–1768", *Journal of Modern History*, lix (1987), pp. 209–43. For the overall conclusions about the development of the navy up to this point, see J. C. Pritchard, *Louis XV's navy: a study of organisation and administration* (Québec, 1987), pp. 209–14.
18. H. M. Scott, "The importance of Bourbon naval reconstruction to the strategy of Choiseul after the Seven Years War", *International History Review*, I (1979), pp. 17–35. A description of the Comte de Broglie's detailed plans for an invasion drawn up in 1764–5 can be found in G. Lacour-Gayet, *La marine militaire de la France sous la regne de Louis XV*, 2nd edn (Paris, 1910), pp. 459–67. Although Choiseul was losing interest in the plan by 1766, the constant prospect of war meant that he continued to gather intelligence, which reached English hands. See M. C. Morison, "The Duc de Choiseul and the invasion of England, 1768–1770", *Transactions of the Royal Historical Society*, 3rd series, iv (1910), pp. 83–115.
19. H. Legohérel, *Les trésoriers généraux de la marine (1517-1788)* (Paris, 1963), pp. 230–1. A good description of the post-1776 administration can be found in J. Boudriot, *The seventy-four gun ship: a practical treatise on the art of naval architecture* (Paris, 1986), pp. 10–16.
20. M. Verge-Francheschi, "Les officiers généraux de la marine royale (1669–1774)", *Revue Historique*, cclxxviii (1987), pp. 335–60, especially pp. 357–9.
21. B. Lutun, "Le plan d'Estaing de 1763 ou l'impossible réforme de la marine", *Revue Historique*, ccxcii (1994), pp. 3–29; J. Aman, *Les officiers bleus dans la marine française au XVIIIe siècle* (Geneva, 1976), pp. 154–5.
22. Aman, *Les officiers bleus*, pp. 135–6. However, Aman also shows that this was an entirely stable situation. Even at the height of the "noble reaction" in the 1780s, the administration could not afford to give commissions exclusively to applicants from the *gardes*. See pp. 41–2.
23. M. Verge-Francheschi, *Marine et education sous L'Ancien Règime* (Paris, 1991), pp. 271–317; 338–48. The following sections deal with Sartine's delicate attempts to balance tradition and reform until the

War of American Independence gave him something solid on which to focus the development of the corps.

24. H. Granier, "La pensée navale française au XVIIIe siècle", in H. Coutau-Bégarie (ed.), *L'evolution de la pensée navale*, 5 vols (Paris, 1990–95), vol. 3 (1993), pp. 53–5.
25. B. Tunstall (N. Tracy ed.), *Naval warfare in the age of sail: the evolution of fighting tactics, 1650–1815* (London, 1990), pp. 119–28, 144; J. R. Bruijn, *The Dutch navy in the seventeenth and eighteenth centuries* (Columbia, SC, 1993), pp. 174–5; G. Teitler, *The genesis of the modern professional officers corps* (London, 1977), p. 158.
26. For the relationship between scientific and economic impulses, see D. Mackay, *In the wake of Cook: exploration, science and empire, 1780–1801* (London, 1985). For an excellent series of essays on navies, exploration and expansion in this period, see J. B. Hattendorf (ed.), *Maritime history*, vol. 2 (Malabar, Fla., 1997).
27. A. Frost & G. Williams, "The beginnings of Britain's exploration of the Pacific Ocean in the eighteenth century", *Mariner's Mirror*, lxxxiii (1997), pp. 410–18; G. Williams, " 'To make discoveries of countries hitherto unknown': the Admiralty and Pacific exploration in the eighteenth century", *Mariner's Mirror*, lxxxii (1996), pp. 14–27. The most recent biography of Cook gives a good account of these expeditions. See R. Hough, *Captain James Cook: a biography* (London, 1994).
28. Naval medicine is a large subject that is still in need of placing in a general European context. The standard work on the Royal Navy is C. Lloyd, J. Keevil & J. L. S. Coulter, *Medicine and the navy, 1200–1900*, 4 vols (Edinburgh, 1957–60). Volume 3 covers this period. On scurvy, see E. C. Gordon, "Scurvy and Anson's voyage around the world: 1740–1744. An analysis of the Royal Navy's worst outbreak", *American Neptune*, xliv (1984), pp. 155–66. On Lind's impact on the Royal Navy, see S. Gradish, *The manning of the British navy during the Seven Years War* (London, 1980), pp. 120–31. See also *ibid*., pp. 172–201 and N. A. M. Rodger, *The wooden world: an anatomy of the Georgian navy* (London, 1986), pp. 98–112 for the general issue of hygiene. The impact of Lind on the Spaniards can be seen in J. de Zulueta & L. Higueras, "Health and navigation in the South Seas: the Spanish experience", in *Starving sailors: the influence of nutrition upon naval and maritime History* (London, 1981), pp. 85–104, especially pp. 94–5. Lind's influence on French thinking can be seen in L. Sueur, "Les maladies des marins français de la Compagnie des Indies et de la marine royale durant la 2e moitié du XVIII siècle", *Revue Historique*, ccxci (1994), 121–30, especially pp. 124–6.
29. R. L. Cohn, "Maritime mortality in the eighteenth and nineteenth centuries", *International Journal of Maritime History*, I (1989), pp. 159–91, especially pp. 175–6; C. Buchet, *La lutte pour l'espace Caribe et la façade Atlantique de l'Amerique Centrale du Sud, 1672–1763*, 2 vols (Paris, 1991), vol. 1, p. 75.
30. Villiers, *Marine royale*, vol. 2 pp. 545–59, 693–713.
31. J. R. Dull, *The French navy and American independence* (Princeton, NJ, 1975), p. 97.
32. J. Merino Navarro, *La armada española en el siglo XVIII* (Madrid, 1981), pp. 26–7, 42. The process of reducing the power of the intendant continued in 1793 and the marine as a separate department of state disappeared between 1799 and 1802, being absorbed into the War Ministry and the Treasury. See *ibid*., p. 20.
33. The final flourish of the Spanish Bourbon navy can be traced in Merino Navarro, *La armada española*; J. D. Harbron, *Trafalgar and the Spanish navy* (London, 1988). For the neglected Spanish scientific and exploratory expeditions in the Pacific, see A. de la Pinera y Rivas, "Los marinos Salvador de Medina y Vincente Do zen la observación de Venus desde California en el año 1769",

in *Temas de historia militar: 2o congreso de historia militar* (Madrid, 1988), vol. 1, pp. 87–99; E. R. Fontillana, "Carlos III y el control del estrecho de Magallanes. La expedición del Capitan de Navio Don Antonio de Córdoba (1785–1786)", in *ibid*., pp. 103–12.

34. Glete, *Navies and nations*, vol. 2, p. 635.
35. *Ibid*., vol. 2, p. 552.
36. N. Tracy, *Navies, deterrence and American independence: Britain and seapower in the 1760s and 1770s* (Vancouver, 1988), pp. 10–12, 22–31; R. F. Mackay, *Admiral Hawke* (Oxford, 1965), pp. 306–7; C. Wilkinson, "The Earl of Egmont and the navy, 1763–6", *Mariner's Mirror*, lxxxiv (1998), pp. 418–33.
37. For an interesting study of one aspect of the cultural impact of the navy and maritime affairs, see P. Eyres, "Hearts of oak: commerce, empire and the landscape garden", *New Arcadian Journal*, xxxv/xxxvi (1993), pp. 3–126. The influence of naval affairs in politics in the 1740s is examined in K. Wilson, "Empire, trade and popular politics in mid-Hanoverian Britain: the case of Admiral Vernon", *Past and Present*, cxxi (1988), pp. 74–109. The powerful belief in the relationship between navies and representative government can be found in A. T. Mahan, *The influence of seapower upon history, 1660–1783* (Boston, Mass., 1890; 1918 edn), pp. 50–7; and C. G. Reynolds, *Command of the sea. The history and strategy of maritime empires* (New York, 1974), pp. 5–6.
38. J. M. Haas, *A management odyssey: the Royal Dockyards, 1714–1914* (London, 1994), p. 42.
39. B. Lavery, *The ship of the line*, 2 vols (London, 1983), vol. 1, pp. 106–9.
40. Mackay, *Admiral Hawke*, pp. 308–10.
41. N. A. M. Rodger, *The insatiable earl: a life of John Montagu, 4th Earl of Sandwich* (London, 1993), pp. 146–71, 323–7.
42. Haas, *A management odyssey*, p. 44. Haas acknowledges Sandwich's vigour and vision, but sees the problems as systemic. By later standards this may be true, but it would have been difficult to tackle a system that had broadly achieved its purpose with the instruments then available to central government.
43. Tracy, *Navies, deterrence and American independence*, pp. 69–99.
44. N. Tracy, "British assessments of French and Spanish naval reconstruction, 1763–1768", *Mariner's Mirror*, lxi (1974), pp. 73–85.
45. N. Stout, *The Royal Navy in America, 1760–1775* (Annapolis, Md, 1973), *passim*; J. Shy, *Towards Lexington: the British army and the coming of the American Revolution* (Princeton, NJ, 1965), p. 424.
46. N. Stout, "Manning the Royal Navy in North America, 1763–1775", *American Neptune*, xxiii (1963), pp. 174–85; J. Lemish, "Jack Tar in the streets: merchant seamen in the politics of Revolutionary America", *William and Mary Quarterly*, xxv (1968), pp. 371–407.
47. D. Syrett, *The Royal Navy in American waters, 1775–1783* (Aldershot, 1989), pp. 1–23. Other general naval histories of the Revolution can be found in J. A. Tilley, *The British Navy and the American Revolution* (Columbia, SC, 1987); R. Gardiner (ed.), *Navies and the American Revolution, 1775–1783* (London, 1996).
48. W. J. Morgan, "American privateering in America's War for Independence, 1775–1783", *Course et piraterie* (Paris, 1975), pp. 556–71, especially, pp. 562–4; D. J. Starkey, *British privateering enterprise in the eighteenth century* (Exeter, 1990), p. 199.
49. H. I. Chapelle, *The history of the American sailing navy: the ships and their development* (New York, 1949), pp. 552–5; W. M. Fowler, *Rebels under sail: the American navy during the Revolution* (New York, 1976), pp. 16–38, 49–56.

50. P. Mackesy, *The war for America, 1775-1783* (London, 1964), pp. 66–9. The best history of the transporting system is D. Syrett, *Shipping and the American war, 1775-1783* (London, 1970).
51. See D. Syrett, "The Royal Navy's role in the attempt to suppress the revolt in America, 1775–1776", in *The American Revolution and the sea* (London, 1974), pp. 10–22, especially p. 17, n.64.
52. Syrett, *Shipping and the American war*, "The Victualling Board charters shipping 1775–1782", *Historical Research*, lxviii (1995), pp. 212–24; "The procurement of shipping by the Board of Ordnance during the American war, 1775–1782", *Mariner's Mirror*, lxxxi (1995), pp. 409–16; "The West India merchants and the conveyance of the king's troops to the Caribbean, 1779–1782", *Journal of Army Historical Research*, xlv (1967), pp. 160–76. On other aspects of the administration of supply, see N. Baker, *Government and contractors* (London, 1971). On the impact of the supply issue upon operations, see R. A. Bowler, *Logistics and the failure of the British army in America, 1775-1783* (Princeton, NJ, 1975).
53. The Delaware campaign is well covered in the most recent volume of *Naval documents of the American Revolution*, vol. 10, M. J. Crawford ed. The series, which started in 1964, provides easy access to a large quantity of primary documents and is essential for studying the war up to the end of 1777.
54. The impact of American operations in European waters, particularly before 1778, is still in need of much research. Views about this have important consequences for considering the Continental Navy as a whole. A speculative article by Jonathan Dull drew attention to some of these issues and got a prompt response, but detailed examination of the issues and effects both in America and Britain is still needed. See J. R. Dull, "Was the Continental Navy a mistake?", *American Neptune*, xxxiv (1984), pp. 167–70; W. S. Dudley & M. A. Palmer, "No mistake about it: a response to Jonathan R. Dull", *American Neptune*, xxxv (1985), pp. 244–8.
55. P. Villiers, "La lutte contre la course anglaise en Atlantique pendant la Guerre d'Indépendance des Etats-Unis d'Amerique, 1778–1783", *Course et piraterie* (Paris, 1975), pp. 572–83, especially, pp. 572–5.
56. Mackesy, *The war for America, 1775-1783*, pp. 154–61; Syrett, *The Royal Navy in American waters*, p. 69; J. R. Dull, *The French navy and American independence: a study of arms and diplomacy, 1774-1787* (Princeton, NJ, 1975), pp. 100–3.
57. For examples see Mahan, *The influence of seapower upon history*, pp. 392–4, 522–7; Dull, *The French navy and American independence*, p. 107.
58. D. A. Baugh, "Why did Britain lose command of the sea during the war for America?", in J. Black & P. Woodfine, *The British navy and the uses of naval power in the eighteenth century* (Leicester, 1988), pp. 149–69.
59. A. T. Patterson, *The other armada: the Franco-Spanish attempt to invade Britain in 1779* (Manchester, 1960), pp. 9–15.
60. The fullest modern account of the siege of Gibraltar is T. H. McGuffie, *The siege of Gibraltar, 1779-1783* (London, 1965). On French–Swedish diplomacy, see C. J. Kulsrud, *Maritime neutrality to 1780* (Boston, Mass., 1936), pp. 328–33. On Anglo-Russian diplomacy, see I. de. Madariaga, *Britain, Russia and the Armed Neutrality of 1780: Sir James Harris' mission to St Petersburg during the American Revolution* (London, 1962), pp. 22–23, 57–95.
61. It did achieve a major success in August 1780 when a cruising squadron off Cape St Vincent captured 55 out of 63 ships in a convoy bound for the West Indies. It was the worst convoy disaster of the war.
62. C. Fernandez-Shaw, "Participación de la armada española en la Guerra de la Independencía de los Estados Unidos", *Revista de Historia Naval*, iii (1985), pp. 75–80; N. O. Rush, *Spain's final triumph over Great Britain in the Gulf of Mexico: the Battle of Pensacola, March 9 to May 8 1781* (Tallahassee, Fla., 1966).

General Campbell, in command of the defence, thought that lack of naval support was critical in his defeat. See *ibid*., pp. 46–7; E. Beerman, "José Solano and the Spanish navy at the siege of Pensacola", in W. S. Coker & R. R. Rea (eds), *Anglo-Spanish confrontation on the Gulf coast during the American Revolution* (Pensacola, Fla., 1982), pp. 125–43.

63. The fullest account is K. Breen, *The navy in the Yorktown campaign: the Battle of the Chesapeake, 1781* (unpublished MA thesis, University of London, 1971).
64. McGuffie, *The siege of Gibraltar, 1779-1783*, pp. 93–115.
65. The issue of signals and tactics is complex and their impact on the conduct and outcome of naval battles is usually very difficult to establish. Books on tactics were rare in the eighteenth century and discussions of tactics in correspondence was also rare until after 1782. The comments here are just speculations upon performance and reflect a view that the experience of superior naval force in battles from 1746 to 1763 and the outcomes of courts-martial 1746–56 may have influenced officers to view the apparently rigid instructions far more flexibly than appears in the printed word. In the Spanish and French navies, on the other hand, a reverse process may have been in progress. As they were building up to face the British with something like parity, they had to keep to the idea of a line rigidly to compensate for lack of experience, training and comprehension between allies with different languages. For the issue of signals see J. S. Corbett (ed.), *Fighting instructions, 1530-1816* (London, 1905), pp. 205–32; Tunstall, *Naval warfare in the age of sail*, pp. 126–58.
66. D. Spinney, *Rodney* (London, 1969), pp. 395–405.
67. McGuffie, *The siege of Gibraltar, 1779-1783*, pp. 139–81.
68. For different views on Suffren and Hughes' achievements, see G. A. Ballard, "The last battlefleet struggle in the Bay of Bengal", *Mariner's Mirror*, xiii (1927), pp. 125–44; *idem*, "Hughes and Suffren", *Mariner's Mirror*, xiii (1927), pp. 348–56; H. W. Richmond, "The Hughes-Suffren campaigns", *Mariner's Mirror*, xiii (1927), pp. 219–37. Richmond is much more sympathetic to Hughes' position than Ballard. Richmond's views are more fully developed in *The Navy in India, 1763-1783* (London, 1931). More recent, and generally positive, views of Suffren's contribution to the evolution of tactics for breaking the line can be found in Villiers, *Marine royale*, vol. 2, pp. 608–24; R. Cavaliero, *Admiral Satan: the life and campaigns of Suffren* (London, 1994), pp. xiii–xv.
69. For an interesting view on the integration of maritime and economic power by the East India Company, see S. Arasaratnam, *Maritime commerce and English power: Southeast India, 1750-1800* (Aldershot, 1996).
70. Villiers, *Marine royale*, vol. 2, pp. 732–40.
71. W. L. Clowes (ed.), *The Royal Navy. A history from the earliest times to 1900*, 8 vols (London, 1898), vol. 3, pp. 523–4.
72. A. G. Jamieson, *The war in the Leewards Islands, 1775-1783* (unpublished DPhil, University of Oxford, 1981), pp. 69–71.
73. At the time, coppering was still doubted as a critical factor either in particular instances or as a general principle, and the procedure was suspended in July 1783. Within two years the main technical problems related to the corrosion of the securing bolts had been solved and the process accepted. See R. J. B. Knight, "The introduction of copper sheathing into the Royal Navy", *Mariners' Mirror*, lix (1973), pp. 299–309; J. R. Harris, "Copper and shipping in the eighteenth century", *Economic History Review*, xix (1966), pp. 550–68.

74. Mahan, *The influence of sea power upon history*, pp. 505–40. For a recent view of Mahan's history, see J. R. Dull, "Mahan, sea power and the War of American Independence", *International History Review*, x (1988), pp. 59–67.

Chapter Ten

1. P. L. C. Webb, "The rebuilding and repair of the fleet, 1783–93", *Bulletin of the Institute of Historical Research*, 1 (1977), pp. 194–209, especially pp. 206–9; idem, "The frigate situation of the Royal Navy, 1793–1815", *Mariner's Mirror*, lxxxii (1997), pp. 28–40, especially pp. 38–9.
2. Webb, "The rebuilding and repair of the fleet, 1783–93", pp. 206–9; P. Villiers, *Marine royale, corsaires et trafic dans l'Atlantique de Louis XIV à Louis XVI*, 2 vols (Dunkirk, 1991), vol. 2, pp. 707–9; J. Glete, *Navies and nations. Warships, navies and state building in Europe and America*, *1500–1860*, 2 vols (Stockholm, 1991), vol. 1, p. 288.
3. R. J. B. Knight, "The performance of the Royal Dockyards in England during the American War of Independence", *The American Revolution and the Sea* (London, 1974), pp. 139–44.
4. For different views, see R. J. B. Knight, "Civilians and the navy, 1660–1832", *Sea studies* (London, 1983), pp. 63–70; *idem*, "Sandwich, Middleton and the dockyard appointments", *Mariner's Mirror*, lvii (1971), pp. 175–92; J. M. Haas, *A management odyssey: the Royal Dockyards*, *1714–1914* (New York, 1994), pp. 21–2, 36–7, 44.
5. D. K. Brown, "The speed of sailing warships, 1793–1840: an examination of the evidence", in *Les empires en guerre et paix*, *1793–1860* (Vincennes, 1990), pp. 155–93.
6. B. Lavery, *The ship of the line*, 2 vols (London, 1981), vol. 1, pp. 119–4; R. Gardiner, *The first frigates : nine and twelve pounder frigates*, *1748–815* (London, 1992), pp. 42–4; A. D. Lambert, "Preparing for the long peace: the reconstruction of the Royal Navy 1815–1830", *Mariner's Mirror*, lxxxii (1996), pp. 41–54; J. Boudriot, "L'évolution de la frigate dans la marine française, 1660–1850", in D. Howse, *five hundred years of nautical science*, *1400–1900* (London, 1981), pp. 229–40, especially pp. 234–6.
7. J. S. Corbett, *Fighting instructions*, *1530–1816* (London, 1905), pp. 233–59; B. Tunstall (N. Tracy ed.), *Naval warfare in the age of sail: the evolution of fighting tactics*, *1650–1815* (London, 1990), pp. 187–201, 205–31. For the issue of visibility of signals, see L. E. Holland, "The development of signalling in the Royal Navy", *Mariner's Mirror*, xxxix (1953), pp. 5–26.
8. P. Webb, "The naval aspects of the Nootka Sound crisis", *Mariner's Mirror*, lxi (1975), pp. 133–54; *idem*, "Sea power in the Ochakov affair of 1791", *International History Review*, ii (1980), pp. 13–33; J. Black, "Naval power, strategy, and foreign policy, 1775–1791", in M. Duffy (ed.), *Parameters of British naval power*, *1650–1850* (Exeter, 1992), pp. 93–120, especially pp. 108–16; R. Lodge, *Great Britain and Prussia in the eighteenth century* (Oxford, 1923), pp 165–205.
9. J. R. Bruijn, *The Dutch navy in the seventeenth and eighteenth centuries* (Columbia, SC, 1993), pp. 173–88; L. Eekhout, *Het Admiralenboek: De Vlagofficieren van de Nederlandse Marine*, *1382–1991* (Amsterdam, 1992), pp. 27–32. On the political crisis, see E. H. Kossman, "The crisis of the Dutch state, 1780–1813: nationalism, federalism, unitarism", in J. S. Bromley & E. H. Kossman (eds), *Britain and the Netherlands* (The Hague, 1971), vol. 4, pp. 156–75.

10. M. Acerra & J. Meyer, *Marines et revolution* (Rennes, 1988), p. 56; Glete, *Navies and nations*, vol. 2, p. 580. Although France had more battleships between 1700 and 1715, they were far smaller ships.
11. W. S. Cormack, *Revolution and political conflict in the French navy, 1789-1794* (Cambridge, 1995), pp. 35–46.
12. Acerra & Meyer, *Marines et revolution*, p. 39; H. Legohérel, *Les trésoriers généraux de la marine (1517-1788)* (Paris, 1963), pp. 351–5.
13. The political and administrative history of the navy is best followed in Cormack, *Revolution and political conflict in the French navy, 1789-1794*. On the general problems of recreating an effective bureaucracy, see C. Church, *Revolution and red tape: the French ministerial bureaucracy, 1770-1850* (Oxford, 1981), pp. 53–159. The demands of Revolutionary and Imperial France for naval forces put different pressures on ports that were naval arsenals rather than commerical ports, with interesting political consequences. Toulon's virulent anti-Jacobinism had much in common with the provincialism of Marseilles, as did the operations of the Revolutionary Tribunals in the two ports. As the revolution progressed, however, Toulon's role as a naval port tied it closely to the Bonapartist state. The revolutionary Terror of Marseilles was orderly and thorough, but subsequently reinforced the political status quo of 1791. See M. Crook, *Toulon in war and revolution: from Ancien Régime to the Restoration, 1750-1820* (Manchester, 1991); W. Scott, *Terror and repression in Revolutionary Marseilles* (London, 1973).
14. A. T. Mahan, *The influence of sea power upon the French Revolution and empire, 1793-1812*, 2 vols (London, 1892), vol. 1, pp. 37–58; J. Martray, "Le déclin de la marine sous la révolution et ses conséquences", *Neptunia*, clxxiv (1989), pp. 25–30; Cormack, *Revolution and political conflict in the French Navy, 1789-1794*, pp. 292–302; Acerra, & Meyer, *Marines et revolution*, pp. 216–17; J. R. Dull, "Why did the French Revolutionary navy fail?", *Proceedings on the Consortium on Revolutionary Europe* vol. 2 (Athens, Georgia, 1989), pp. 121–37; E. Ingram, "Illusions of victory: the Nile, Copenhagen and Trafalgar revisited", *Military Affairs*, xlviii (1984), pp. 140–3. I am grateful to Dr Michael Duffy for drawing my attention to the last work.
15. J. P. Merino Navarro, *La armada española en el siglo XVIII* (Madrid, 1981), pp. 38, 85.
16. J. S. Shaw, "Selim III and the Ottoman navy", *Turcica*, 1 (1969), pp. 213–41, especially pp. 217–26; N. Saul, *Russia and the Mediterranean, 1797-1807* (Chicago, 1970), pp. 216–20.
17. M. Smelser, *Congress founds a navy, 1787-1798* (Notre Dame, Ind., 1959; Westport, Conn., 1973 edn), *passim*; C. L. Symonds, *Navalists and antinavalists: the naval policy debate in the United States, 1785-1827* (Newark, NJ, 1980), pp. 19–47; C. McKee, *A gentlemanly and honorable profession: the creation of the U.S. naval officer corps, 1794-1815* (Annapolis, Md., 1991), pp. 29, 43–50.
18. Smelser, *Congress founds a navy, 1787-1798*, pp. 129–47; M. A. Palmer, *Stoddert's war: naval operations during the Quasi-War with France, 1798-1801* (Columbia, SC, 1987), pp. 125–6, 129, 238–9; Symonds, *Navalist and anti-navalists*, pp. 79–86.
19. For the army, see S. F. Scott, *The response of the Royal Army to the French Revolution* (Oxford, 1978), pp. 103–20, 193–204.
20. The best account of the West Indian operations 1793–7 is in M. Duffy, *Soldiers, sugar and seapower: The British expeditions to the West Indies and the war against Revolutionary France* (Oxford, 1987). For the 1793–4 operations see pp. 31–135.
21. H. J. K. Jenkins, "Guadeloupe's commerce raiding 1796–1798: perspectives and contexts", *Mariners' Mirror*, lxxxiii (1997), pp. 303–9.

22. Duffy, *Soldiers, sugar and seapower*, pp. 170–257.
23. For how these principles affected the European campaign, see M. Duffy, " 'A particular service': the British government and the Dunkirk expedition of 1793", *English Historical Review* (1976), pp. 529–54, especially pp. 530–1.
24. See Mahan, *The influence of sea power upon the French Revolution and empire, 1793-1812*, vol. 1, pp. 110–19; M. W. B. Sanderson, *English naval strategy and maritime trade in the Caribbean, 1793-1802* (unpublished PhD, University of London, 1969), pp. 113–18, 343–53; C. D. Hall, *British strategy in the Napoleonic Wars, 1803-1815* (Manchester, 1992), p. 77. For the campaign on St Domingue see also D. Geggus, *Slavery, war and revolution: the British occupation of St Domingue, 1793-1798* (Oxford, 1982). On the Second Coalition, see P. W. Schroder, "The collapse of the Second Coalition", *Journal of Modern History*, lix (1987), pp. 244–90. For a reassessment of the value of the Caribbean expeditions, see Duffy, *Soldiers, sugar and seapower*, pp. 379–89.
25. R. Saxby, "The blockade of Brest and the French Revolutionary War", *Mariners's Mirror*, lxxviii (1997), pp. 25–35.
26. Cormack, *Revolution and political conflict in the French navy, 1789-1794*, pp. 261–2.
27. P. Crowhurst, *The French war on trade: privateering, 1793-1815* (Aldershot, 1989), pp. 10–13; C. Pfister "Un exemple de blocus réussi: Dunkerque de 1793 à 1814", *Les empires en guerre et paix, 1793-1860* E. Freeman (ed), (Vincennes, 1990), pp. 107–38.
28. On the difficulties and eventual collapse of British strategy see P. Mackesy, *Statesmen at war: the strategy of overthrow, 1798-1799* (London, 1972); *idem*, *War without victory: the downfall of Pitt, 1799-1802* (Oxford, 1984).
29. The behaviour of the common seamen is an aspect of naval history that is only now receiving the attention it deserves. Attempts to extrapolate motivation and thought from the recorded actions of seamen is fraught with difficulties and have to be based on some a priori assumptions. Nonetheless, the task is now being undertaken. The mutinies of 1797 have been discussed from different perspectives in G. E. Manwaring & B. Dobree, *Mutiny: the floating republic* (London, 1935) and J. Dugan, *The great mutiny* (London, 1966). For recent views on maritime communities, see C. Howell & R. J. Twomey (eds), *Jack Tar in History* (Fredricton, 1991). For a recent construction of the seafarers' world see M. Rediker, *Between the devil and the deep-blue sea: the merchant seaman, pirates and the Anglo-American maritime world, 1700-1750* (Cambridge, 1987).
30. H. W. Richmond, *The invasion of Britain. An account of plans and attempts and counter-measures from 1586 to 1918* (London, 1941), pp. 38–43; R. Wells, *Insurrection: the British experience, 1795-1803* (Gloucester, 1983), pp. 59–63, 254.
31. P. Masson & J. Muraciole, *Napoleon et la marine* (Paris, 1968), pp. 75–77, 142; C. Oman, *Nelson* (London, 1947), pp. 411–20.
32. Acerra & Meyer, *Marines et revolution*, p. 247.
33. R. Morriss, *The Royal Dockyards during the Revolutionary and Napoleonic Wars* (Leicester, 1983), *passim*; Gardiner, *The first frigates*, pp. 55–6. On the blockade, see J. Leyland (ed.), *Despatches and letters relating to the blockade of Brest, 1803-1805*, 2 vols (London, 1898 and 1902). For an insight into the anxious state of British planning, see T. H. McGuffie, "The stone ships expedition against Boulogne, 1804", *English Historical Review*, lxiv (1949), pp. 488–502. This plan to block up Boulogne with sunken vessels was not undertaken, but, in the wake of the failure to destroy the invasion flotilla by bombardment in 1801, desperate expedients were examined.

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51. Mckee, *A gentlemanly and honorable profession*, pp. 48–50. This was part of the changing administrative processes in the nineteenth century. The British navy was undergoing a similar change. See N. A. M. Rodger, "Officers, gentlemen and their education", *Les empires en guerre et paix, 1793-1860*, pp. 139–50. A comparative study of the processes by which various states adapted their navies to changing administrative philosophy in the nineteenth century is still needed. Works already cited contain much research on these matters. For the growing role of the British Treasury in policy during this period, see P. K. Crimmin, "Admiralty relations with the Treasury, 1783–1806: the preparation of Naval Estimates and the beginnings of Treasury control", *Mariner's Mirror*, liii (1967), pp. 63–72; and *Admiralty administration, 1783-1806* (unpublished MPhil, University of London, 1965).
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Chapter Eleven

1. For a selection of informative and interesting writings that reflect this perspective of seapower, see J. Alford (ed.), *Sea power and influence: old issues and new challenges* (Farnborough, 1980); N. Luttwak (ed.), *The political use of sea power* (Baltimore, Md., 1974); E. Grove, *The future of seapower* (London, 1990); K. Booth, *Navies and foreign policy* (London, 1974); C. S. Gray & R. W. Barnett (eds), *Seapower and strategy* (Annapolis, Md., 1989); H. Moinville, *Naval warfare today and tomorrow* (Oxford, 1983); G. Modelski & W. R. Thompson, *Seapower in global politics, 1494-1993* (London, 1983).
2. In Modelski & Thompson's model, seapower is measured explicitly by fleet size, although modified by important caveats. See *Seapower and global politics*, p. 51. Jan Glete's study has provided the most comprehensive data for such measurement. On the "axiom of indispensability" and the problems it raises, see N. Rosenberg, *Inside the black box: technology and economics* (Cambridge, 1982), pp. 3–29.

3. For a good survey of the factors influencing the consolidation of British colonial power after 1780, see C. A. Bayly, *Imperial meridian: the British Empire and the world, 1780–1830* (London, 1989). Bayly does not try to assess the relative significance of British naval domination, but emphasizes that it was only one of many factors that made imperial expansion and consolidation possible.
4. A. D. Lambert, *The Crimean War: British grand strategy, 1853–1856* (Manchester, 1990), pp. 25–8, 343–7.
5. Very little attention has been paid to naval warfare in the general debates around "military revolution". Professor Geofrey Parker saw the sailing ship armed with heavy cannon as a transformation of the early sixteenth century, which had become a high-seas fleet by the mid-1650s, but which could not impose decisive results upon its adversaries. The essays edited by Clifford Rogers, *The military revolution debate: readings on the military transformation of early modern Europe* (Boulder, Colo. 1995), contain two, by John Guilmartin and Jeremy Black, which address the naval context of the changes. (See also J. Black, *European warfare, 1660–1815* (London, 1994), pp. 3–37.) Recently, Parker's view of the heavy cannon warship as "a truly revolutionary departure" has been reinforced by M. A. J. Palmer. However, Palmer does not see the general adoption of the line of battle as a revolution, but rather a natural development, extrapolated from the experience of commanders who wished to maximize their firepower. W. Maltby came to the same conclusion, but for very different reasons. Whereas Palmer sees the line as limiting the commander's control, Maltby presents it as a means of increasing control. An interesting turn on the military revolution debate was provided by B. M. Downing, who argued that the costs of military and bureaucratic modernization led to absolutism. Seapower enabled states to cover the costs of modernization from overseas trade or contributions, thus easing the domestic political pressure. This is only a small part of his argument and is contentious. Much more work needs to be done to explore this hypothesis. See G. Parker, *The military revolution: military innovation and the rise of the West, 1500–1800* (Cambridge, 1988), pp. 95–103; M. A. J. Palmer, "The military revolution afloat: the era of the Anglo-Dutch Wars", *War in History*, iv (1997), pp. 123–49, quotation p. 124; W. Maltby, "Politics, professionalism and the evolution of sailing ship tactics", in J. A. Lynn (ed.), *Tools of war: instruments, ideas and institutions of warfare, 1445–1871* (Chicago, 1990), pp. 53–73; B. M. Downing, *The military revolution and political change: origins of democracy and autocracy in early modern Europe* (Princeton, NJ, 1992), pp. 59–80, 195–8, 213–14.

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