

The Aftermath of Defeat

Societies, Armed Forces, and the
Challenge of Recovery

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The Royal Navy's Recovery after the Early Phase of the American Revolutionary War

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A sharp dip in the seemingly relentless rise of British naval power took place in the first years of the American Revolutionary War; indeed, during 1778 and 1779 the Royal Navy was almost completely ineffectual. Within eighteen months of the defeat of the army at Saratoga, it fought an inconclusive action off Ushant that many considered a defeat and experienced major political court-martials of the two admirals involved in the battle, Augustus Keppel and Hugh Palliser, which split the service and the country. The Spanish entered the war in early 1779, and in that summer a combined Franco-Spanish fleet entered the Channel intent on invasion. Lord Sandwich, the first lord of the Admiralty, was under severe political attack in both houses of Parliament, while Lord North, the prime minister, had lost the will to make decisions and wanted nothing more than to resign; only the king's obduracy prevented the government from collapsing. The sixty-six ships of the Franco-Spanish fleet were faced by the forty-two ships of the Western Squadron (including old ships commissioned "for summer service only"), commanded by a benign but lackluster sixty-three-year-old admiral, Charles Hardy. Worried about the threat to Ireland, he took his fleet well to the west. The French-Spanish fleet came between the British fleet and the English coast, panic ensued at Plymouth, and the citizens fled. One member of the government, Lord George Germain, commented: "I think we have more reason to trust in Providence than in our Admirals."¹

The reasons for the loss of the thirteen American colonies and the

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part that naval failure played in it have been attributed to various causes over the years. The late Victorians were either dismissive or bewildered. Sir John Knox Laughton and Admiral W. M. James, for instance, influenced by the victories of the Seven Years' War and subsequent British success against Revolutionary and Napoleonic France, blamed the corrupt administration of Lord Sandwich or made general observations on naval malaise. One book, published as late as 1987, dismissed the problem by stating, without analysis, that Sandwich's administration was "abysmally inept."² R. G. Albion's imaginative but erroneous theory on the effect of the lack of American masts on the British navy, published in 1926, has made its mark.³

Since the 1960s, the naval war has been the object of much more systematic attention, beginning with Piers Mackesy's book *War for America* (1964), which placed the loss of the colonies in a domestic and European context. Jonathan Dull's book on the French role in the war is immensely valuable in assessing French intentions and resources, while Hamish Scott puts the conflict into the context of foreign policy.⁴ David Syrett has analyzed the naval war in American (though not Canadian) waters; recent studies by Nicholas Tracy and Michael Duffy of the periods before and after add pieces to the puzzle.⁵ Nevertheless, a comprehensive work on the strategy and resources of the European and naval war has yet to be written, and in particular on that vital ingredient of seapower, naval manning.⁶ The only piece of work to fill that vacuum is a short article by Daniel Baugh, in which he challenges the idea of the often noted disadvantage created by England's lack of allies in Europe to distract France.⁷ Those allies cost money in subsidies, and that money was better spent on the navy. He noted how strong the British navy was by the end of the war, and how the French and Spanish navies had declined. If this is a correct view, and he presents a strong case, one may certainly ask why, with so many inherent strengths, did the British navy perform so poorly at the start of the American War?

This chapter does not focus on strategic analysis, for England's recovery in this war owed nothing to a revamped strategic approach. Suffice it to say that Sandwich's naval direction reflected his as well as the government's weak position. The most frequent criticism leveled at him is that he was overly protective of home waters, and that public opinion, shaken by the invasion threat after 1779, influenced his decisions. This fear kept fleets at sea well into the winter months, punishing the ships. It also delayed the dispatch of vital fleets to North America in 1778 and

1779 and to the West Indies in 1780, and it weakened the defense of the Mediterranean garrisons. While the war was never going to be won in the Channel, Sandwich was too conscious that it could have been lost there.⁸ Strategic boldness comes only from confidence and mutual trust among members of the government. Yet internal tensions, particularly between Sandwich and Germain, made it impossible to risk the occasional reverse. Underlying this political weakness was the fact that Britain faced a new political phenomenon, large-scale colonial rebellion.

Opposition in Parliament and country led Lord North and his colleagues into a series of unprofitable political calculations and gambles between 1774 and 1777. Public opposition led to a hesitation to build ships, large and small, to strategic indecision, and to damaging tension between the government and the professional navy. After French and Spanish intervention in 1778 and 1779, and once the conflict was translated into the more traditional pattern of a European war, it became clear that Britain's navy was very badly outnumbered. This realization jolted the government out of its slumber. The government made a series of radical decisions concerning shipbuilding and the application of new technology. It committed resources in hitherto unknown amounts; its naval administration became reinvigorated. This dramatic initiative gave the Royal Navy such momentum that, not only did it finish the American War strongly, but it won a lead over its rivals which was to last, threatened though it was by Napoleon, throughout the age of the wooden ship.

It is best to approach this problem by seeing two mobilizations in this war. The first one, in 1775, launched the war in North America. It was too little. The second, to meet the French and then the Spanish threat, began at the end of 1777. This was too late.⁹ North's government totally underestimated the naval requirements in North America in the first years of the war and tried to get away with a quick military victory and minimal naval expense. One of the first acts of any British government at the first sign of trouble would be to order frigates and sloops to be built on the London River, but North failed to do this.¹⁰ Due to the politically sensitive nature of this rebellion, the government lacked the political will to act. The rebellion was not quashed, and all available frigates had to be sent to North America, leaving none in home waters. Yet in spite of intelligence reports that the French were investing in preparing their navy, North still insisted on budgetary stringency.

There were a number of reasons why Sandwich lost the early argu-

ment for increased navy funding and why North insisted on budget stringency. In September 1772 North wrote to Sandwich, "This is the time, if ever there was a time, for a reasonable and judicious economy." He then added prophetically: "It must be owned that we suffered a little from the unprepared state in which we were at the opening of the last two wars; but then, our resources, our credit, and the length of our purse, which had been carefully managed during the preceding times of peace, carried us through with glory and success." Sandwich could only reply, "I do not entirely see it in the same light."¹¹ The naval debt had risen because of the Falklands, and there was a good deal of relaxation because of the diplomatic success of that crisis. Intelligence reports depicted a weak French navy and discounted the Spanish one. The government became distracted by Spanish-Portuguese tension. Besides, Sandwich was spending a good deal of money building up the reserves of naval stores. Nevertheless, North hesitated and held onto this position after the news of Bunker Hill, when intelligence reports were quite clear that the French were rearming.¹² Through these years Sandwich was forced to make savings. The dockyard workforce was cut in March 1774. Sandwich had further to force the pace of change by the attempt to implement task work (payment by tasks rather than by the day). This, in turn, led to a hard-fought strike in all the dockyards except Deptford. By July 1775, of course, the situation had changed dramatically and the Navy Board ordered the yards to hire any shipwrights they could get. Despite this policy, the yards could not obtain the shipwrights they need for the rest of the war.¹³ Orders for ships of the line came to a virtual halt until late in 1777. With the average three years' building time, it meant that ships of the line were being built at a rate of only two a year for the first three years of the war. It was just not enough.

When the news of the defeat at Saratoga reached London, North realized how unprepared he was. He had gambled on a quick victory. He tried to resign, but the king would not agree. Then the pendulum swung the other way. Political weakness turned almost to political panic. Lord Sandwich was now pressed to build, and his administration, with the newly appointed and energetic Charles Middleton as controller of the navy, approached the shipbuilders. A greater number of shipbuilders than ever before were engaged to build naval ships. Eighteen ships of the line were ordered in 1778-79; but it took a minimum of three years to build such a ship. True, five already standing in frame in the royal yards were finished off and launched within eighteen months, and merchant yards

quickly produced fifty-five frigates and sloops (25,750 tons) in those two years. The initial hesitation was rectified but the delay caused a critical shortage of ships in America during the only period in the war when the rebellion could have been stifled by blockade or crushed by greater naval and military force.

A French naval challenge was yet another obstacle that Lord North's government did not take seriously enough, early enough. Apart from a brief period in the previous century, France had presented no real naval threat; but after 1763 the French navy was given a chance to mobilize resources on a larger scale. Although the duc de Choiseul failed to meet the targets he set himself, he did succeed in some important infrastructural reforms. In addition, the Toulon and Brest dockyards were improved, as was the administrative structure of the French navy, and he increased the fleet to sixty-seven battleships, although he had hoped to reach eighty. Even so, by 1770, when Choiseul fell from power, France did not feel able to challenge British strength. This explains why in the Falkland Islands crisis of 1770, the Bourbon powers held back. Nevertheless, during the 1760s warship construction in Britain and France proceeded at the same rate and in the 1770s the relative strengths of the two nations were converging.¹⁴

After the war, lessons were absorbed. In a revealing analysis, a clerk from the Navy Board, Charles Derrick, wrote in his *Memoirs of the Progress of the Royal Navy* that Britain, in order to meet the challenge of both France and Spain, needed to maintain a hundred ships of the line in good condition. In order to do this, it was calculated during the 1780s that Britain had to build or make a large repair on ten ships of the line every year.¹⁵ Table 1 shows that the building of ships of the line did not approach this level until 1782; nor, during these years, were enough ships of the line given major repairs, as table 2 reveals. Taken together, these two tables make it clear that, prior to the French intervention in March 1778, Sandwich was losing the battle against decay; and after 1775, when the Bourbons started rearming, he was losing the battle before it was fought. The navy averaged a gain of three new ships of the line a year between 1771 and 1778.¹⁶ During the same period it broke up ships at a rate of 3.5 a year. It was only making 2.5 major repairs a year. If Sandwich inherited 86 ships in 1771, as he said, then matters were serious indeed, as he realized a year later. In short, the expansion of the fleet from the time of the Seven Years' War, both in numbers and in the size of ships, created a navy that the Admiralty could never maintain properly.¹⁷

Table 1. British Naval Ships Launched by Year

Year	Ships of Line		50 Guns and Under		Total	
	No.	Tonnage	No.	Tonnage	No.	Tonnage
1771	1	1,650	3	1,222	4	2,872
1772	3	4,699	1	35	4	4,734
1773	2	3,579	7	4,570	9	8,149
1774	7	10,357	9	7,261	16	17,618
1775	4	6,220	4	2,374	8	8,594
1776	2	3,028	18	6,103	20	9,131
1777	2	3,309	17	7,140	19	10,449
Subtotal	21	32,842	59	28,705	80	61,547
1778	2	3,259	24	10,987	26	14,246
1779	3	4,900	29	14,863	32	19,763
1780	5	7,167	19	12,132	24	19,299
1781	7	10,192	21	13,967	28	24,159
1782	10	15,194	18	11,509	28	26,703
1783	6	9,793	20	12,839	26	22,632
Subtotal	33	50,505	131	76,297	164	126,802
Total	54	83,347	190	105,002	244	188,349

Source: Basic information is taken from *Admiralty Abstract of Progress Books, 1759-1821* (Public Records Office, ADM 180/6-9) and Navy Board warrants to the dockyards, 1774-1781 (Public Records Office, ADM 95/95 and 96). Supplemental information comes from the list of ships in Brian Lavery, *The Ship of the Line*, 1: 178-86, and J. J. Colledge, *Ships of the Royal Navy: An Historical Index* (Newton Abbot, 1969), vol. 1.

In addition to the problem of an inadequate number of ships, the lack of political will ensured that Sandwich could not "pick a . . . fighting admiral."¹⁸ There can be no doubt that the professional officer corps was divided into factions for a good deal of this war and that this factionalism was extremely serious, was at the center of the political stage at a crucial time, and excluded professionally respected admirals from vital commands. This divisiveness caused a morale problem in the Channel fleet for four years and for much of the time, though perhaps for slightly different reasons, in the West Indies fleets. At the time, Sandwich was seen as the cause of this divisiveness; was it his fault? If so, why?

It has been suggested that the prime reason why distrust was endemic

Table 2. British Naval Ships of the Line

Year	Major Repairs			Broken up/Sold		
	100+90 guns	74 guns	64 guns	100+90 guns	74+70 guns	66/64/60 guns
1771	—	—	—	—	—	3
1772	—	1	2	—	1	6
1773	—	2	1	—	1	3
1774	—	—	2	1	2	4
1775	—	3	—	1	3	1
1776	—	1	—	—	—	1
1777	—	1	2	—	—	1
1778	1	3	—	—	—	—
1779	1	—	—	—	—	—
1780	1	3	2	—	—	—
1781	—	2	1	—	—	—
1782	2	7	4	—	—	—
1783	—	3	—	—	—	—

Source: Basic information is taken from *Admiralty Abstract of Progress Books, 1759-1821* (Public Records Office, ADM 180/6-9) and Navy Board warrants to the dockyards, 1774-1781 (Public Records Office, ADM 95/95 and 96). Supplemental information comes from the list of ships in Brian Lavery, *The Ship of the Line*, 1: 178-86, and J. J. Colledge, *Ships of the Royal Navy: An Historical Index* (Newton Abbot, 1969), vol. 1.

Note: Judgment is needed on what constitutes a major repair, for there is considerable discrepancy between the dockyard officers' classification of a "large," "middling," or "small" repair and the cost of each repair which is so assiduously listed in the *Abstract of Progress Books*. For the purpose of this analysis, repairs costing over £20,000 for a first rate, £15,000 for a 74-gun ship and £10,000 for a 64-gun ship have been taken as a major reinvestment, representing approximately one-third of their building cost. This method gives the Sandwich administration the benefit of the doubt; I doubt whether these criteria would have satisfied Charles Derrick and his mentor, Charles Middleton, for the sums spent on the repair of each ship in the late 1780s were far in excess of these figures. Those ships that were guardships during the peace did not need major repairs since a steady amount of money was spent on them annually and their maintenance was high on their captains' list of priorities. The table for ships broken up or sold is taken directly from a Navy Office Paper, dated 27 December 1781, of ships broken up between 1771 and 1781 (*Sandwich Papers*, 4: 306).

in this period was that Sandwich was unique in the eighteenth century—that is, a civilian politician who knew as much about the navy as the admirals themselves. But the picture of the admirals against one man, albeit a civilian, is inaccurate. For if the admirals did not like Sandwich, they liked each other even less. There was, for instance, intense personal rivalry between the leading admirals of the day: Richard Howe never got on with Keppel; no-one trusted George Rodney; Rodney was suspicious of everyone; Commodore George Johnstone hated Howe; Howe had not talked to Lord George Germain since 1758.¹⁹ The politics of the period, intense in the country as a whole, aggravated the situation, but rarely initiated problems. Personal and professional rivalries were at the heart of this widespread distrust.

These rivalries focused on three main areas of conflict. The first two related problems were the squabbles over prize money and the equivocal position of flag officers appointed to foreign stations. These problems were not unique to this war, indeed, they were a constant irritant throughout the eighteenth century. Rodney had longstanding differences with Marriot Arbuthnot and with Peter Parker on both counts, while he fell out with all and sundry over the St. Eustatius booty. The protracted quarrels, in particular in the months before the Battle of the Chesapeake, were particularly damaging.²⁰ The friction that was generated by imprecise orders and boundaries, particularly on the North American station, which was commanded largely by second-rate men, was at times laughable. The third area of conflict involved promotion and appointment, decisions that were controlled by the first lord of the Admiralty. By the time of the war with America, the options available for rewarding those at the top had become too few and were too complex. If one admiral was rewarded with the sinecure of a lieutenant-generalship of marines, or ordnance, or the treasurership of the navy, the others were alienated. The traditional view of the problems with promotion, proffered by Sir John Laughton, is that Sandwich was corrupt.

The patronage system has been defended in detail in the last few years. The most recent and persuasive defense argues that from a professional standpoint the checks and balances in a system of personal recommendation worked extremely well, particularly when naval officers knew everyone's professional reputation very well, when captains were on the lookout for talented junior officers, and when a minimum standard of competence had been established by lieutenants' exams after six years at sea. In the mid-eighteenth century, when the navy was administered by a

naval officer of unassailable professional reputation, a sound fortune, and a strong general political base, this was undoubtedly the case. Sustained analysis by N. A. M. Rodger demonstrates patronage in a similar fashion to that most respected of sea officers and first lords, George Anson, that he resisted political influence as much as he could and that in applying strict standards Sandwich "was deviating sharply from what was expected of him by colleagues and contemporaries."²¹

The other part of the problem was that naval officers were too near the heart of politics. Let us take the 1780 Parliament where sixteen naval officers had seats, later increasing to eighteen. Six were flag officers (Rodney, George Darby, High Pigot, Keppel, Howe, Molyneux Shuldham). The others included Governor Johnstone, Lord Mulgrave, Lord Robert Manners, George Berkeley, Edmund Affleck, and George Elphinstone. However, only three naval officers can be described as active politicians closely associated with a tight-knit political group during the course of the war.²² Mulgrave and Palliser (after the court-martial of 1779, of course, a political embarrassment) were closely associated with the administration, and Keppel with the Rockingham group. Naval officers sought to become members of Parliament for a variety of reasons, not only to cultivate political connections, but also for local and family reasons. A seat in Parliament could be useful, for instance, because an admiral on a foreign station might be vulnerable, particularly to mercantile interests in disputes over convoying, prizes, or pressing for crews. Opposition to Sandwich therefore was very far from being "party" based. When things were going badly, Parliament provided the venue in which professional and political grievances could directly challenge the authority of the first lord of the Admiralty. If he was not strong politically, then this weapon could be very effective; and Sandwich was far from strong as a political figure.

There was a contradiction in Sandwich's personal political position within the North government. First, he controlled a number of seats in Huntingdon and elsewhere that were of importance to the prime minister. Yet Sandwich rarely called the tune; his need for money, and thus the need to cling to office, led to few risks. Lord Sandwich's position was very weak; he was neither political nonentity, nor a political liability; but he was, apparently, politically irreplaceable. The underlying problem was the weakness of Lord North's leadership, which was nonexistent at times.²³ At two or three crucial points, only the will of the king kept the administration in office. Antagonisms among the members of the administration reflected North's lack of will. The cautious Sandwich was too

often opposed by Germain, who was always pressing for attack. Throughout, it seemed that Sandwich never felt himself strong enough to deal "straight" with his admirals. A number of scholars have picked up instances or periods when he was particularly weak. Professor Baugh notes his lack of clear direction in the politically sensitive Howe command in 1776. Piers Mackesy picks up his tendency to hide behind his cabinet colleagues or to take the easy path of conversations, meetings, and private letters rather than issue clear written orders in the hectic summer of 1779.²⁴

Who would Sandwich have had to deal with? First, there were the capable, though conceited, admirals—Howe, Keppel, and Rodney. At various times they were all on good terms with Sandwich. All of them fell out with him eventually, but then all were difficult men. Add Augustus Hervey, the Earl of Bristol, Samuel Barrington, Johnstone, and Pigot to the list of able men who opposed him. Second, there were the pensioners or makeweights—the compromise, or just bad, appointments. These included Hardy, Thomas Graves, Darby, Arbuthnot, Shuldham, and, worst of all, James Gambier. Third, there were the able administrators who were political lightweights: Middleton, Palliser, and Maurice Suckling came into this category. Only Samuel Hood and Richard Kempenfelt were able and kept their nonaligned reputation. It was this last group upon which Sandwich relied. With the weakness both of his own position, and of the government's, the result was weak or cautious strategic decisions and nonthreatening appointments.

Yet the British did recover from this position of weakness. To date the turnaround in 1781 is perhaps to fly in the face of obvious facts. With the French and Spanish cooperating effectively, this was a successful year for them: Pensacola and Tobago were captured; Minorca fell; and the strategic advantage sprung by de Grasse at the Chesapeake led to the capture of Cornwallis's army at Yorktown. This vital defeat broke the British will to see military victory in North America as a possibility. The French then set out to press home their advantage with attacks on Jamaica and India.

The war became a real test of stamina. Who had the reserves of ships, of men, and of money? The French concentrated larger and larger numbers of workers in their dockyards by means of impressment and by the use of convict labor, and they did not use private builders as a matter of course. By contrast, the six British royal dockyards built fewer and fewer warships as the century progressed, and once war began, they built

Table 3. British Naval Ships Launched by Yard

Year	Royal Dockyards				Merchant Yards			
	Ships of Line		50 Guns and Under		Ships of Line		50 Guns and Under	
	No.	Tonnage	No.	Tonnage	No.	Tonnage	No.	Tonnage
1771	1	1,650	1	302	—	—	2	920
1772	3	4,699	1	35	—	—	—	—
1773	2	3,579	—	—	—	—	7	4,560
1774	3	4,389	3	1,896	4	5,968	6	5,365
1775	3	4,606	4	2,374	1	1,614	—	—
1776	2	3,028	7	2,622	—	—	11	3,481
1777	2	3,309	3	1,093	—	—	14	6,047
Subtotal	16	25,260	19	8,322	5	7,582	40	20,373
1778	2	3,259	4	1,413	—	—	20	9,574
1779	3	4,900	4	1,591	—	—	25	13,272
1780	1	1,370	4	3,533	4	5,797	15	8,599
1781	4	5,995	5	2,830	3	4,197	16	11,137
1782	4	6,065	—	—	6	9,129	18	11,509
1783	—	—	1	1,050	6	9,793	19	11,789
Subtotal	14	21,589	18	10,417	19	28,916	113	65,890
Total	30	46,849	37	18,739	24	36,498	153	86,263

Source: Basic information is taken from *Admiralty Abstract of Progress Books, 1759-1821* (Public Records Office, ADM 180/6-9) and Navy Board warrants to the dockyards, 1774-1781 (Public Records Office, ADM 95/95 and 96). Supplemental information comes from the list of ships in Brian Lavery, *The Ship of the Line*, 1: 178-86, and J. J. Colledge, *Ships of the Royal Navy: An Historical Index* (Newton Abbot, 1969), vol. 1.

very few indeed, concentrating instead on repairing and refitting existing ships. The merchant yards in the south of England took almost all the strain of building (see table 3).²⁵

The rate of building increased as the war continued. Between 1778 and 1783—the years of the European war—an average of twenty-seven new ships were added every year to the British navy, a total of 126,802 tons during these years. The peak was reached in 1781 and 1782, with 24,159 and 26,703 tons, respectively. It is worth noting the construction figures of smaller ships, those of 50 guns and under, because the British

were desperately short of frigates and sloops in the years before the European powers entered the war. Between 1778 and 1783, 131 were built, just under 76,000 tons. Of these, only eighteen were built in the royal dockyards—13 percent by numbers of ships and tonnage; the rest were built by the private sector. At the same time, the British line-of-battle fleet reached maximum strength in September 1782, and French intelligence was well aware of it. And perhaps more significantly, on the larger slips of the Thames, Medway, the Essex rivers and the Solent, a further thirty ships of the line were under construction.

It was this capacity for regeneration which Charles Vergennes, the French foreign minister, recognized in mid-October 1782, when he wrote to the French ambassador in Madrid, to persuade the Spaniards to make peace:

The English have to some degree regenerated their Navy while ours has been used up. Constructions have not been at all equivalent to consumptions; the body of good sailors is exhausted and the officers show a lassitude in war which contrasts in a disadvantageous manner with the energy which not only the sailors but the entire English nation eagerly manifests. Join to that the diminution of our financial means which are limited by reason of the usage which has been made of them. That inconvenience is common, no doubt, also to England, but her constitution gives her in that regard advantages which our monarchical forms do not accord us. She will pay dearly for money, but she will find more easily than us all that she needs.²⁶

British capacity was further helped by two technological innovations, arguably the only effective ones in the century. Both were the result of decisions made in 1778 when the government had its back to the wall. Charles Middleton enthusiastically argued for these innovations, which were both successful gambles that were effective from 1780 onwards.

The first was the adoption of copper sheathing of ships' hulls. The search for an effective sheath, first, to inhibit the growth of barnacles and seaweed which slowed the ships and, second, to stop the depredations of the *teredo navalis*, had been continuous for more than a hundred years. Softwood or elm sheathing, covered with a sulfurous composition, was used prior to this time, but it had the disadvantage of having to be renewed every three years. Since the late 1760s, experiments with copper had been carried out on small naval ships to find an effective means of stopping the galvanic corrosion of the iron fittings in ships caused by

the contact of copper with sea water. By the beginning of the European war, tarred paper between copper and the heads of the iron bolts had had some good results. In 1778, at a meeting between the king, Sandwich, and Middleton, the decision was made to copper the whole fleet. The majority of the fleet was coppered in two years, which was a considerable achievement. In 1780 alone, 42 ships of the line were given the new sheathing. By early 1782, by the end of Sandwich's administration, 313 ships (82 capital ships, 14 of 50 guns, 115 frigates, and 102 sloops and cutters) had been coppered. Though the French followed suit, they were delayed by technical problems with copper nails, some difficulties in distributing materials, and later shortages of copper. Only half the French ships that went to the West Indies in 1781 were coppered, while only one Spanish ship was coppered in this war.²⁷

Advantages came in different ways. Ships no longer had to be docked when refitted, a process that averaged between four and five months for a seventy-four-gun ship; now they could be turned round within weeks. Just as important, once the coppering had taken place, it enabled the dockyards to clear their docks for repairing. Table 2 shows that thirteen ships-of-the-line were given major repairs in 1782; at the same time as the building capacity crescendoed in 1782, the repairing program hit its peak.

At sea, the impact of copper sheathing is more difficult to assess, but the admirals were enthusiastic. Kempenfelt was quoted as saying that "25 coppered ships of the line were enough 'to tease' the combined French/Spanish fleet in the Channel in 1779." Rodney attributed much of his success in capturing six Spanish ships-of-the-line in the Moonlight Battle in 1780 to coppering. Confidence grew in the latter part of the war, and, as one historian notes when writing on copper sheathing, "in war . . . believing in one's own superiority is not to be taken lightly."²⁸ Another study demonstrates that in the final years of the campaigns in the West Indies the battle was as much to keep the ships afloat and at sea as fighting the French, and the superiority of English coppered ships of the line was a key factor in success in these last years. Coppering came to be taken into strategic as well as tactical thinking.²⁹

Yet the decision was a gamble, because of the technical difficulties that were known but not fully understood despite the experiments in the 1760s and 1770s. The galvanic effect of the sea water and the copper on the ships' main iron bolts slowly continued during the war, in spite of the improved methods used to prevent it. Although the copper provided a clear advantage during the fighting, this galvanic action wore away at the iron bolts and in one incident, four ships of the line were lost.

In September 1782, when the French ships captured at the Saints, the *Ville de Paris* (110) and *Glorieux* (74), and the English *Ramillies* (74) and *Centaur* (74) foundered in a severe Atlantic storm while returning from the West Indies; 3,500 British seamen lost their lives, more than in ten years of naval warfare. Moreover, it was a financial gamble. Although the copper sheathing immediately added between 10 and 15 percent to the cost of a ship, the correspondence in 1778–79 does not mention the financial implications of this decision. In the 1780s, there was a further immense cost: Thomas Williams, the principal copper contractor, developed a compound metal bolt that contained copper and thus stopped the corrosion. Although Charles Middleton at the Navy Board was skeptical at first, it was decided in August 1786 that all ships had to be given the new bolts.

The other technological advantage that the British had was the carronade. This was a powerful, light, wide-caliber gun, very effective at short range. The ball fitted tightly into the barrel and used less power, and thus the gun could be built more lightly (a 32-pound carronade weighed the same as a 6-pound long gun). They were adopted in 1779, despite resistance from naval officers. After several successes, all such resistance was overcome in 1782 when a 44-gun frigate (the *Rainbow*) encountered a French 38-gun privateer (the *Hebe*) that was more than 200 tons larger, and caused her to surrender after a single broadside at short range. Carronades were rarely solely used, for an enemy could keep its distance, but they changed the pattern of naval warfare, and close action became more common. Eventually, of course, the French copied the gun, but they did not use it effectively before the end of the war.³⁰

Some of this effort was translated into British success at sea by 1782. Rodney brought discipline into the West Indies fleet and his thirty-six ships beat de Grasse's thirty-three at the battle of the Saints in April of that year. Hughes kept Suffren at bay in India. It was clear, too, that the blockade of Gibraltar, the key objective upon which the Franco-Spanish alliance was founded, was so loose that Darby, in relieving the siege for the second time in March 1781, was scarcely molested; the Spaniards' final massive effort failed and Howe carried the third relief in October 1782. The British thus had a few late cards to play in the protracted peace negotiations, which culminated in an agreement in March 1783.

Thus Britain's financial and naval resources came near to neutralizing the political and strategic hesitancy of the period before 1778. In contrast to the financial squeeze of the prewar years, an unprecedented

level of funds was thrown at a political problem—the challenge to naval superiority. Between 1778 and 1781, France regained the prestige and some of the territory she had lost in the Seven Years' War and Britain lost the American colonies. Britain could have lost more of her empire to the French, for Jamaica and India were at risk, but by the end of 1781 superior financial and shipbuilding resources put the initiative back into British hands. Lord North's budgetary stringencies of the early 1770s and the crucial alliance with Spain gave France a three-year "window of opportunity" in 1778; and it is not entirely coincidental that three years was the contract period for a private shipbuilder to build a seventy-four-gun ship.

What comes into play here is also the nature of government. France, authoritarian in structure and style, had in this war fewer problems with policy and choosing objectives, yet her resources were less organized and controllable. During this war, Britain's policy- and decision-making processes were ineffective, though her policy was supported by increasingly well-administered and potentially stronger resources. The North government wove its way through these years, as if through a maze without a map, battered by opponents of the idea of the war itself and by a navy that was weakened by internal struggles.

Matters thus came down to money and to credit. Professor Baugh advances the figures of 81 percent borrowed, and only 19 percent covered by tax revenues.³¹ Britain carried a huge naval debt three years into the peace, which Parliament funded with scarcely a murmur. The ability of eighteenth-century Britain, or in John Brewer's phrase the "fiscal-military state," to shoulder large and increasing debts underpinned this great effort.³² There can be no doubt of the British naval and economic advantages. British naval strength, in an elegant phrase of William McNeill's, was "supple and effective." It was supple because of the unrivalled credit system based on the Bank of England which fuelled the private sector, eager to make profits by producing a British fleet. It was effective because of what McNeill less elegantly described as the "feedback loop," for the naval industry was particularly rooted in the economy. "Naval power and expenditure reinforced commercial expansion while commercial expansion simultaneously made naval expenditures easier to bear."³³

The French attempt to convert resources and money, almost overnight, from the army to the navy could not be long-lasting. In Professor Baugh's words: "No amount of French or Spanish money could quickly augment the pools of trained seamen and shipwrights, or suddenly create

well-equipped dockyards and overseas bases and well-tested administrative procedures, or secure high-quality naval stores.”³⁴ Or in the words of a pamphleteer of 1782:

Naval strength is not the growth of a day, nor is it possible to retain it, when once acquired, without the utmost difficulty, and the most unwearied attention. The English have proved by their conduct, for almost two centuries, the firmness and steadiness of their naval character. Whereas the maritime enthusiasm of the French has only occasionally taken place, and does not seem consistent with the natural bent and genius of the people.³⁵

and Lawrence Freedman, *The Evolution of Nuclear Strategy* (London: Macmillan, 1985), esp. 313–24.

5. As Liddell Hart has argued, “It is essential to conduct war with constant regard to the peace you desire” (Basil Henry Liddell Hart, *Strategy* [New York, 1974], 353; quoted in Paul Kennedy [ed.], *Grand Strategies*, 2).

Chapter 1

1. Quoted in Piers Mackesy, *The War for America, 1775–1783* (Cambridge, Mass.: Harvard University Press, 1964), 288.

2. J. K. Laughton, *Letters and Papers of Charles, Lord Barham Admiral of the Red Squadron 1758–1813* (London: Navy Records Society, 1907–11), 2: viii; W. M. James, *The British Navy in Adversity* (London: Longmans, Green, 1926), 16–18; John A. Tilley, *The British Navy and the American Revolution* (Columbia: University of South Carolina Press, 1987), 277.

3. R. G. Albion, *Forest and Seapower: The Timber Problem of the Royal Navy, 1652–1862* (Cambridge, Mass.: Harvard University Press, 1926), esp. ch. 7; but see R. J. B. Knight, “New England Forests and British Seapower: Albion Revisited,” *American Neptune* 46 (1986): 221–29.

4. Jonathan R. Dull, *The French Navy and American Independence: A Study of Arms and Diplomacy, 1774–1787* (Princeton, N.J.: Princeton University Press, 1975); H. M. Scott, *British Foreign Policy in the Age of the American Revolution* (Oxford: Oxford University Press, 1990).

5. David Syrett, *The Royal Navy in American Waters, 1775–1783* (London: Scholar Press, 1989); Nicholas Tracy, *Navies, Deterrence and American Independence: Britain and Seapower in the 1760s and 1770s* (Vancouver: University of British Columbia, 1988); N. A. M. Rodger, *The Insatiable Earl: A Life of John Montagu, 4th Earl of Sandwich* (London: Collins, 1993), 212–300; Michael Duffy, *Soldiers, Sugar and Seapower: The British Expeditions to the West Indies and the War against Revolutionary France* (Oxford: Oxford University Press, 1987), 3–37.

6. A manpower study covering the whole of the military and naval effort during this war is badly needed. Dull cites the lack of skilled manpower as a considerable restraint on the effectiveness of the French fleet (*French Navy*, 286–87). Advantage would seem to lie with the French at the start of the war, with the effect of the *Inscription*, but the reserves ran short by the closing years—a parallel to the shipbuilding effort. This is the view of Martine Acerra and Jean Meyer, *Marines et Revolution* (Rennes: Ouest France, 1988), 31. It is clear that the British effort to raise men started very slowly, with the government very wary, because of the political unpopularity of the war, of an early full-scale impressment.

7. Daniel A. Baugh, “Why Did Britain Lose Command of the Sea during the War for America?” in Jeremy Black and Philip Woodfine (eds.), *The British Navy and the Use of Naval Power in the Eighteenth Century* (Leicester: Leicester University Press, 1988), 149–69. Baugh also makes the point (163) that the British ultimately had far more skilled seamen than France, and certainly more than Spain.

8. See Jonathan R. Dull, “Mahan, Sea Power, and the War for American Independence,” *International History Review* 10 (1988): 66.

9. This is the argument put forward by Daniel Baugh in “The Politics of British Naval Failure, 1775–1778,” *American Neptune* 52 (1992): 221–46; see also Syrett, *Royal Navy*, esp. 61–91.

10. For the prompt ordering of frigates in the two previous wars, see Daniel A. Baugh, *Naval Administration in the Age of Walpole* (Princeton, N.J.: Princeton University Press, 1966), appendix 2; *Naval Administration, 1715–1750* (London: Navy Records Society, 1977), 193, 217–18; Richard Middleton, *The Bells of Victory: The Pitt-Newcastle Ministry and the Conduct of the Seven Years’ War, 1757–1762* (Cambridge: Cambridge University Press, 1985), 108–9.

11. See G. R. Barnes and J. H. Owen, *The Private Papers of John, Earl of Sandwich* (London: Navy Records Society, 1932–38), 1: 20, 21, 23.

12. See Tracy, *Navies*, 38–41, 126–58.

13. See R. J. B. Knight, *Portsmouth Dockyard Papers, 1774–1783: The American War* (Portsmouth: Portsmouth Record Series, 1987), xlv–xlvii, 35, 45–50, 156–57. A shortage of skilled shipwright labor was the most constraining factor in British naval expansion for the whole of the century; also R. J. B. Knight, “The Building and Maintenance of the British Fleet during the Anglo-French Wars, 1688–1815,” in Martine Acerra, José Merino, and Jean Meyer (eds.), *Les Marines de Guerre Européennes XVII–XVIII Siècles* (Paris: Presses de l’Université de Paris—Sorbonne, 1985), 38–39.

14. See H. M. Scott, “The Importance of Bourbon Naval Reconstruction to the Strategy of Choiseul after the Seven Years War,” *International History Review* 1 (1979): 17–35; Tracy, *Navies*, 69–99; Jan Glete, *Navies and Nations: Warships, Navies and State Building in Europe and America, 1500–1860* (Stockholm: Almqvist and Wiksell International, 1993), 1: 285–86.

15. P. L. C. Webb, “The Rebuilding and Repair of the Fleet, 1783–1793,” *Bulletin of the Institute of Historical Research* 50 (1977): 201–2.

16. From the evidence in these tables, it is clear that I take issue with Nicholas Tracy when he states (34–35) that Sandwich “more than held his own in the repair and expansion of ships.”

17. See Knight, “Building and Maintenance,” 42–43.

18. The phrase was used by William B. Wilcox in “Arbuthnot, Gambler and Graves: ‘Old women’ of the Navy,” in G. Billias (ed.), *George Washington’s Opponents* (New York: Morrow, 1969), 262.

19. The following arguments are based on J. H. Broomfield, “Lord Sandwich at the Admiralty Board: Politics and the British Navy, 1771–1778,” in *Mariner’s Mirror* 51 (1965): 7–17; and John A. Davies, “An Inquiry into Faction among British Naval Officers during the War of the American Revolution” (M.A. thesis, University of Liverpool, 1964).

20. See Kenneth Breen, “Divided Command: The West Indies and North America, 1780–1781,” in Black and Woodfine (eds.), *British Navy*, 191–206.

21. N. A. M. Rodger, *Insatiable Earl*, 191; also Rodger, *The Wooden World: An Anatomy of the Georgian Navy* (London: Collins, 1986), 302.

22. See I. R. Christie, *The End of North’s Ministry, 1780–1782* (London: MacMillan, 1958), 176–77; Davies, “Enquiry into Faction,” 3–13.

23. Hilariously so, on at least one occasion. The account survives of a cabinet

meeting in 1780, after a good dinner, at which the decision to recall the Dutch ambassador was made; North was asleep throughout the meeting, though he was little better than the others. See H. M. Scott, "Sir Joseph Yorke: The Politics and Origins of the Fourth Dutch War," *Historical Journal* 31 (1988): 571–72.

24. Baugh, "British Naval Failure," 240; Mackesy, *War for America*, 283–84; Rodger, *Insatiable Earl*, 224–31, demonstrates the complexities of his political position.

25. Knight, "Building and Maintenance," 41–44. The Navy Board hardly ever used the northeast of Britain, yet this area was the most dynamic shipbuilding area in England.

26. Vergennes quoted in Dull, *French Navy*, 316–17. His chapter headings illustrate the sudden reversal of French fortunes and their loss of morale and political will: Chapter 8: "1781—the *Annus Mirabilis*"; Chapter 9: "1782—Disintegration and Reprieve." Nevertheless, a comparison with the tables in this paper and those in Dull (appendix C, pp. 352–55, and appendix D, pp. 356–58) show that the French were keeping up with construction and repairs up to 1782; but after that year they knew they could no longer compete. (I am grateful to Michael Duffy for some refinements on this point.) This differs from the interpretation of Jose P. Merino Navarro, *La Armada Española en el Siglo XVIII* (Madrid: Fundación Universitaria Española, 1981), 357–58; his graphs demonstrate that Spanish construction declined relative to Britain as early as 1775, and French construction from 1780.

27. Dull, *French Navy*, 176, 257, 291.

28. J. E. Talbott, "Copper, Salt and the Worm," *Navy History* 3 (1989): 53; see also R. J. B. Knight, "The Introduction of Copper Sheathing into the Royal Navy, 1779–1786," in *Mariner's Mirror* 59 (1973): 299–309. French copper does seem to have been inferior; see Acerra and Meyer, *Marines*, 78–79.

29. Alan Jamieson, *War in the Leeward Islands, 1775–1783* (D.Phil., Oxford University, 1981), 47–50, 72, 245–46.

30. The most useful technical authority on the carronade is Brian Lavery, *The Army and Fitting of English Ships of War, 1600–1815* (London: Conway Maritime Press, 1987), 104–9, 123–25. For the problems of its introduction and acceptance, see John E. Talbott, "The Rise and Fall of the Carronade," *History Today* 39 (August 1989): 25–30.

31. Baugh, "Command of the Sea," 161.

32. John Brewer, *The Sinews of Power: War, Money and the English State, 1688–1783* (London: Unwin Hyman, 1989), 114–21, is especially illuminating on the state's dependence on credit and its ability to convert wartime short-term liabilities into long-term publicly funded credit. See also 175–78, 197–98.

33. William H. McNeill, *The Pursuit of Power* (Chicago: University of Chicago Press, 1982), 181.

34. Baugh, "Command of the Sea," 163.

35. John Sinclair, *Thoughts on the Naval Strength of the British Empire* (London: T. Cadell, 1782), 14–15.